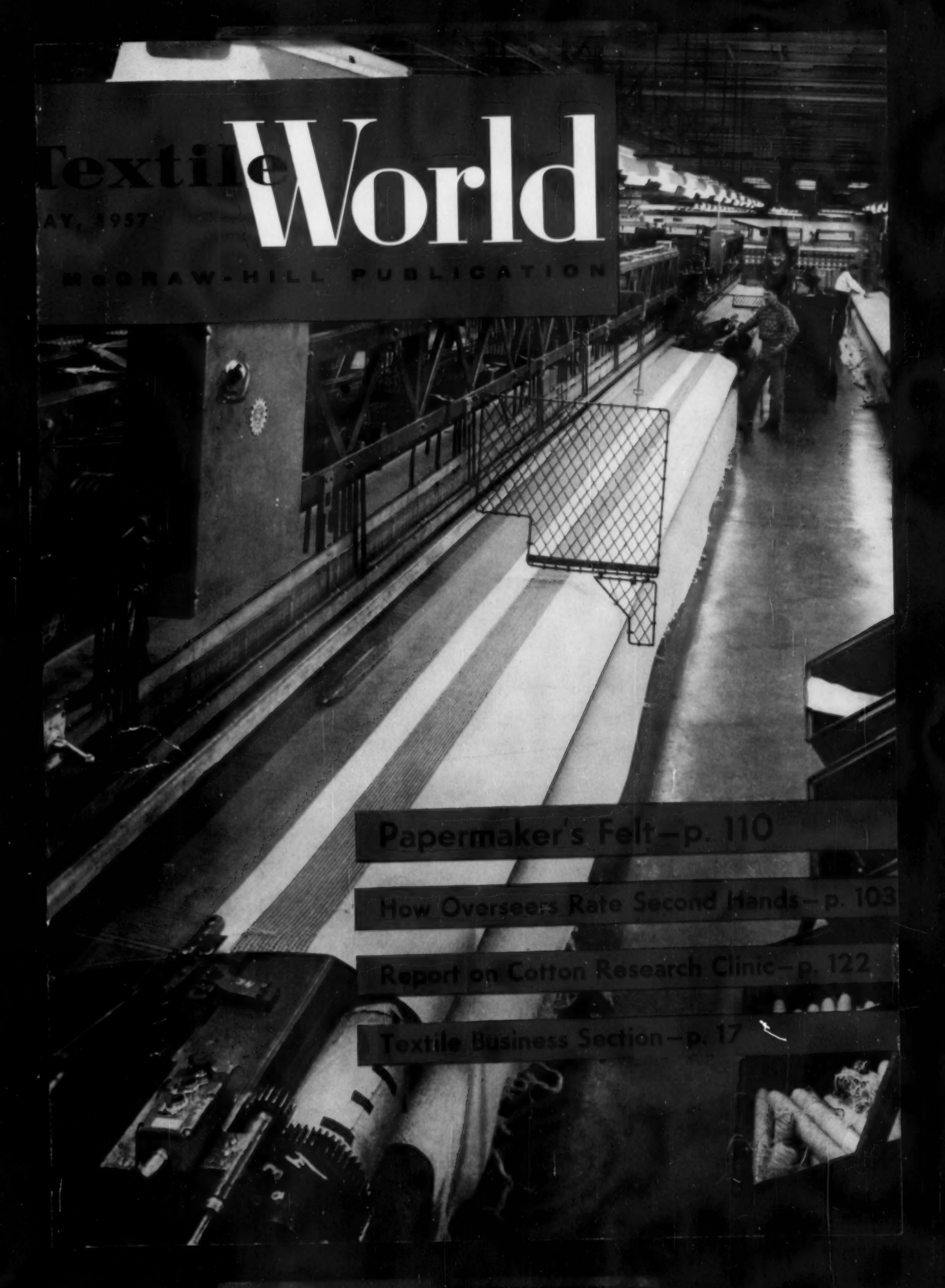

Textile World

MAY, 1957

McGRAW-HILL PUBLICATION

Papermaker's Felt—p. 110

How Overseers Rate Second Hands—p. 103

Report on Cotton Research Clinic—p. 122

Textile Business Section—p. 17

VELVAMINE "T"

NON YELLOWING DURING HIGH TEMPERATURE DRYING OR CURING

•

RESISTANT TO LIGHT & HEAT EFFECT

•

EXCELLENT COMPATIBILITY IN ACID AND ALKALI SOLUTIONS

•

DOES NOT AFFECT THE LIGHT FASTNESS OR SHADE OF DYESTUFFS

•

REDUCES STATIC ELECTRICITY IN VARIOUS FIBER STOCK, YARNS & FABRICS

The finisher likes Velvamine "T" for its simple, fool proof application.

The manufacturer finds improved abrasion resistance, better lubricity and sewability, with no needle burn, and increased production.

The retailer is glad to offer garments of finer quality, and features of Velvamine "T"

WRITE FOR TECHNICAL SERVICE BULLETIN.

Manufacturing Chemists

Refined PRODUCTS CORPORATION

Lyndhurst • New Jersey

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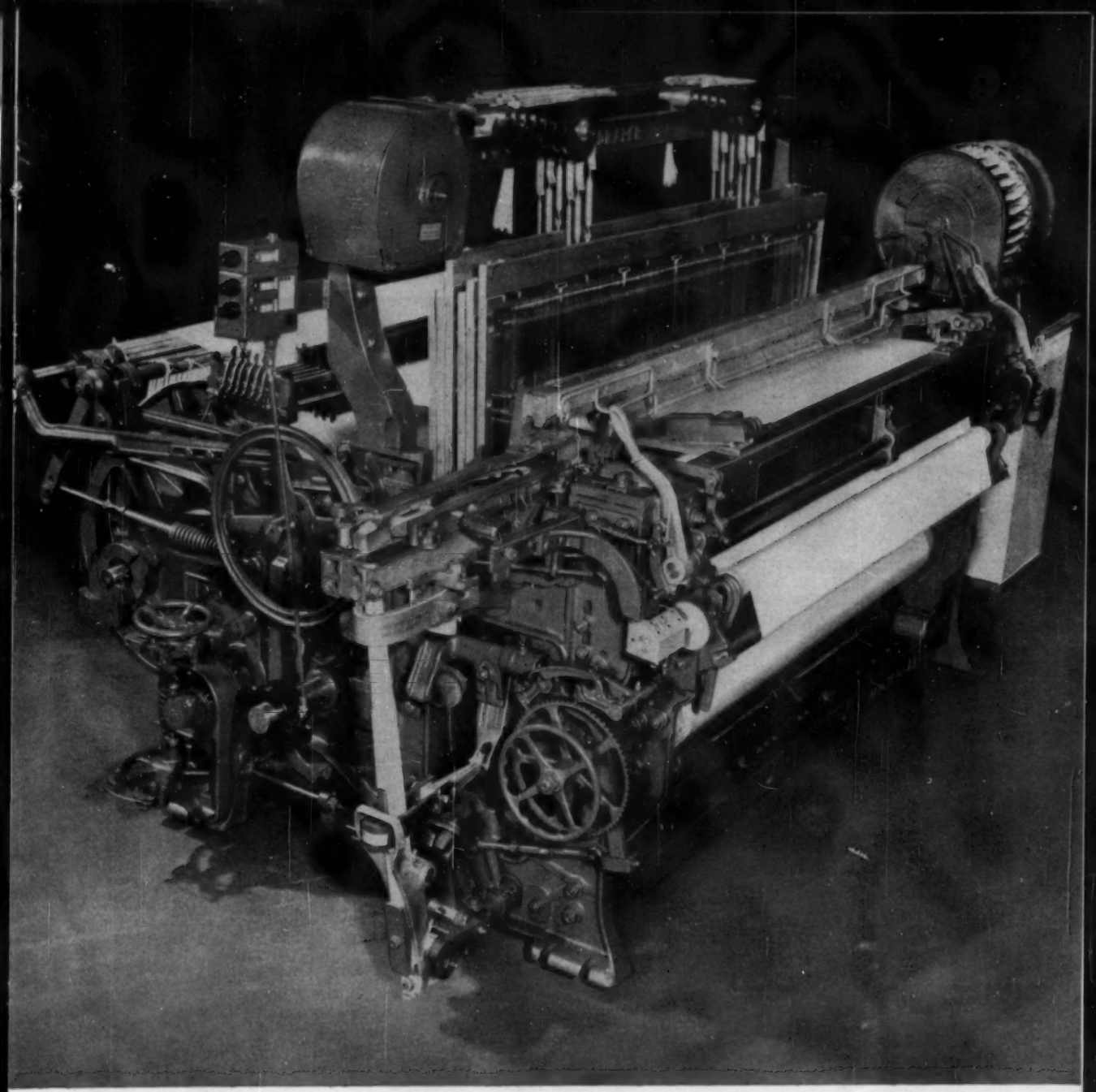


This loom gives you all the competitive advantages

Long range flexibility, practical and economical operation, higher production, increased efficiency and a new low in maintenance cost are major benefits offered by the new Draper X-2.

The changing fashions in cotton and synthetics create a need for a loom which can be converted on short notice to weave a wide variety of fabrics.

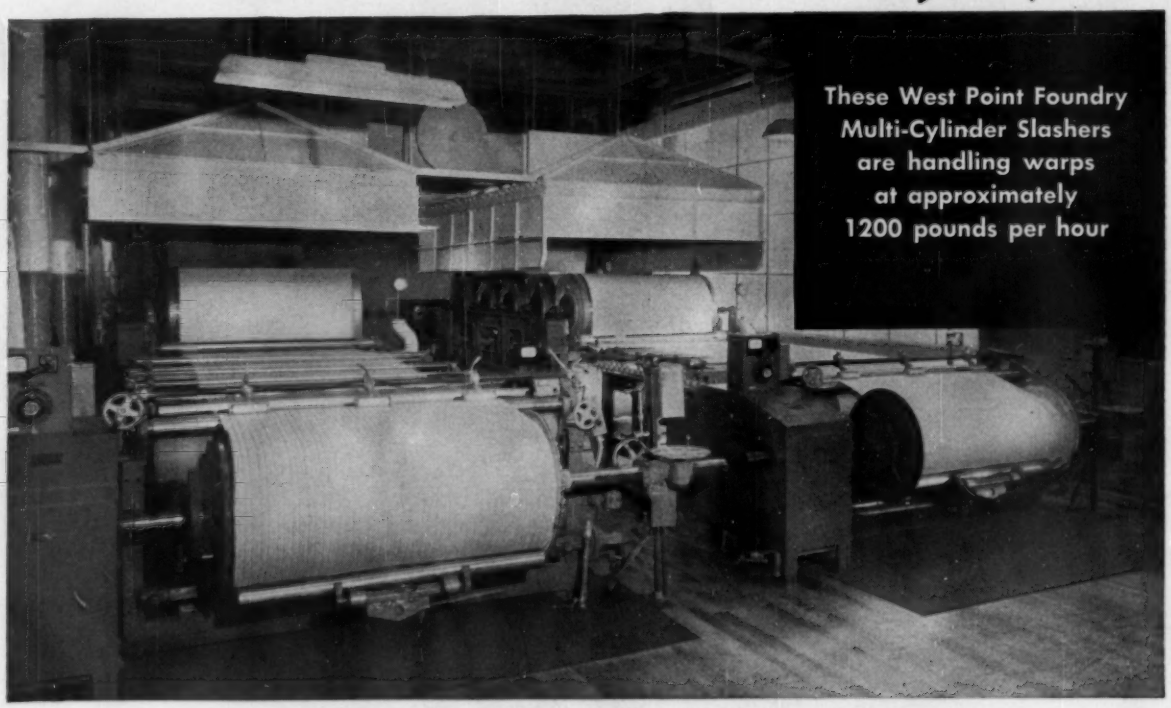
The X-2 with its ability to weave cottons or synthetics equally well, answers this conversion problem.

The combined advantages of the Draper X-2 mean . . . higher mill profits.

DRAPER CORPORATION

Hopedale, Mass. *Atlanta, Ga.* *Greensboro, N. C.* *Spartanburg, S. C.*

Slash More Warp at Less Cost



That's a *typical* drying rate these high producing slashers are turning out in a Georgia mill of one of the largest textile organizations*—1240 pounds per hour, 5560 ends of 24's cotton at 75 yards per minute. In other mills West Point Foundry MULTI-CYLINDER slashers are slashing warps at speeds up to 230 yards per minute and drying rates of 2000 pounds per hour. That's *high production*—the reason why *four* West Point Foundry MULTI-CYLINDER slashers replaced seven of the old 3-cylinder slashers!

** Name furnished on request*

Increase production...lower costs

MULTI-CYLINDER SLASHERS already in many mills have cut in half the number of slashers *and the floorspace* needed to handle a mill's production. And they continue to produce for years with dependable, high speed performance. They are built on heavy *machined* CAST IRON frames—built to take it! Another important advantage of the MULTI-CYLINDER SLASHER is its extreme versatility. It does an outstanding job on cotton, spun and filament synthetics. Teflon coating on entering cylinders makes it completely applicable to cotton. Multiple cylinders permit graduated temperature controls when required for synthetic warps. Superior *control of tension* throughout the slasher and *steam economy* are two more profit-making features. THIS SLASHER IS A MONEY-MAKER!

Remember—you have a choice with West Point because West Point Foundry makes both MULTI-CYLINDER and AIR-DRI® Slashers.

For complete details, write

WEST POINT
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Textile World

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Textile World

CALENDAR

May

The Fiber Society, spring meeting, Clemson House, Clemson, S. C., May 1 & 2.

Cotton Manufacturers Association of Georgia, annual convention, Emerald Beach Hotel, Nassau, Bahama Islands, May 1 to 4.

Alabama Textile Operating Executives, spring meeting, Thach Auditorium, Auburn, Ala., May 4.

National Association of Wool Manufacturers, annual meeting, Waldorf-Astoria, New York, N. Y., May 9.

North Carolina Industrial Safety Conference, Robert E. Lee Hotel, Winston-Salem, N. C., May 9 to 11.

Southern Textile Association, Piedmont Div., Catawba Country Club, Hickory, N. C., May 11.

Carolina Yarn Association, annual outing, The Carolina, Pinehurst, N. C., May 16 to 18.

National Association of Woolen & Worsted Overseers, Bancroft Hotel, Worcester, Mass., May 17 & 18.

National Cotton Week, sponsored by the National Cotton Council of America, May 20 to 25.

American Society for Quality Control, annual convention, Masonic Temple, Detroit, Mich., May 22 to 24.

Cotton Textile Market Conference, sponsored by National Cotton Council, Hotel Statler, New York, N. Y., May 28 & 29.

South Carolina Textile Manufacturers Association, annual meeting, The Cloister, Sea Island, Ga., May 30 to June 1.

Tufted Textile Manufacturers Association, annual convention, Fontainebleau, Miami Beach, Fla., May 30 to June 1.

June

Southern Textile Association, annual convention, Ocean Forest Hotel, Myrtle Beach, S. C., June 20 to 22.

September

Fiber Society, Textile Institute, joint meeting, Hotel Statler, Boston, Mass., Sept. 4 to 6.

Combined Yarn Spinners Association, annual meeting, The Cloister, Sea Island, Ga., Sept. 26 & 27.

Carded Yarn Association, annual meeting, The Cloister, Sea Island, Ga., Sept. 27 & 28.

AATCC, Piedmont Section, Hotel Barringer, Charlotte, N. C., Sept. 28.

Textile Operating Executives of Georgia, fall meeting, Hightower Textile Building, Georgia Institute of Technology, Atlanta, Ga., Sept. 28.

October

Chemical Finishing Conference, National Cotton Council of America, Statler Hotel, Washington, D. C., Oct. 2 & 3.

Southern Textile Methods & Standards Association, fall meeting, Clemson House, Clemson, S. C., Oct. 10 & 11.

Alabama Textile Operating Executives, fall meeting, Thach Auditorium, Auburn, Ala., Oct. 12.

National Industrial Packaging & Handling Exposition, Convention Hall, Atlantic City, N. J., Oct. 28 to 31.

November

AATCC, national convention, Hotel Statler, Boston, Mass., Nov. 14 to 16.

December

AATCC, Southeastern section, Dinkler Plaza Hotel, Atlanta, Ga., Dec. 7.

TEXTILE WORLD. Published monthly, with an additional issue in July, by McGraw-Hill Publishing Co., Inc., EXECUTIVE, SUBSCRIPTION, AND ADVERTISING OFFICES: 330 W. 42nd Street, New York 36, N. Y. EDITORIAL OFFICE: 201 E. Coffee Street, Greenville, S. C. Publication Office, 99-129 North B'way, Albany 1, N. Y. Second-class mail privileges authorized at Albany, N. Y. **For subscriptions,** write to: TEXTILE WORLD Subscription Service, 330 West 42nd Street, New York 36, N. Y. **State company and position. Subscriptions are solicited only from executives, engineers and technicians in textile manufacturing or finishing plants.** Single copies $1.00. United States and Possessions and Canada, $2 for 1 yr. Other Western Hemisphere and Philippines, $10 for 1 yr. Other Countries $15 for 1 yr. Printed in USA. Annual index in Jan. issue.

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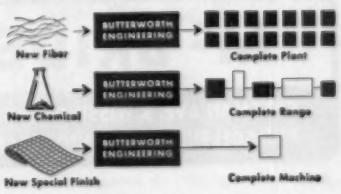
Butterworth now builds 84 standard but diversified machines for the textile industry, from synthetic fiber spinning through dyeing, bleaching and finishing. The men, methods and facilities that created those 84 machines can go to work for you . . . to develop your ideas . . . in complete secrecy . . . and with a single source of high responsibility.

Want to give driving force to your ideas?
Call on Butterworth Developmental Engineering . . . today.



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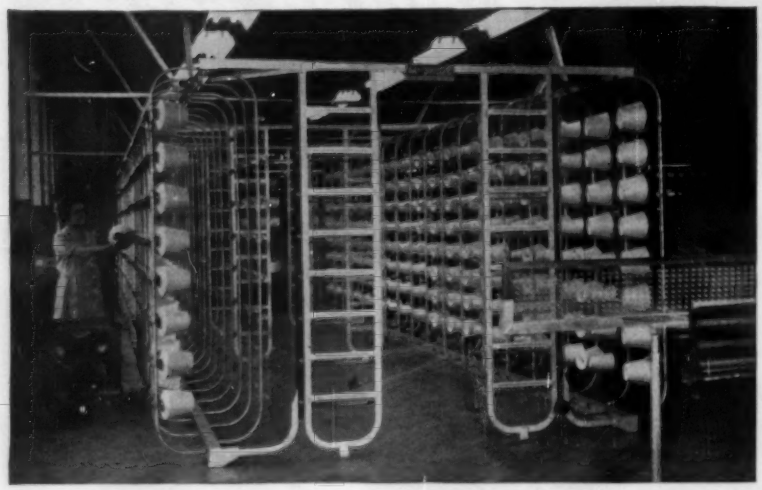
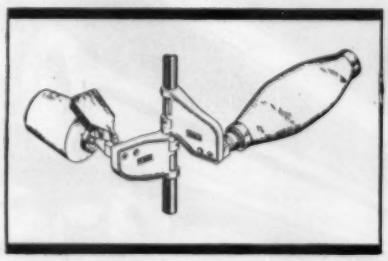
McBRIDE CREEL CORNER

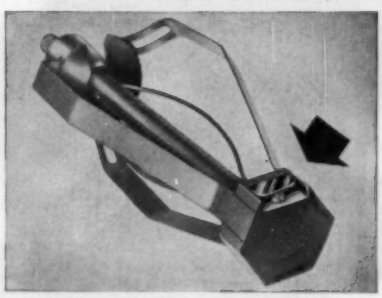


Can your warp room handle the great variety of modern packages? Consider these advantages of a McBride Creel Swing Arm Assembly.

- **Rugged construction for rigid support of heaviest packages.**
- **Readily swings out for package change, snaps back into locked position.**
- **Accommodation of most packages without special adapters by Quik-Change Cone Holder or Bowed Spring Spindle; adapters available for the few exceptions.**
- **Perfectly smooth surfaces; no ragged or sharp edges to snag ballooning yarn.**
- **Yarn won't fall off behind the package; self-adjusting, polyurethane Anti-Snagging Pad firmly but gently follows back edge of package during draw off.**



McBride Swing Arm Assembly



McBride Quik-Change Cone Holder in position over Bowed Spring Spindle. Note spring thumb release; snaps back on.

We specialize in difficult warping problems. Ask us about yours.

CREELS for every purpose, CONE HOLDERS, STOP MOTIONS, TENSION CONTROLS, WARP BEAMS, FLANGES, CARPET INSPECTION TABLES, METAL AND WOOD ROLLS. COMPLETE ENGINEERING SERVICE IS PART OF EVERY McBRIDE INSTALLATION

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We welcome your comments. Whether you agree or disagree, with us or anybody else, we will be glad to have you air your views.

Unless you ask us not to, we will use your name and company connection when your letter is printed. If you prefer to have your opinions appear unsigned, we will respect your confidence by using only a set of initials.

Write to Editor, Round Table, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

ENGINEER SEEKS A JOB

Dear Editor:

I read with interest the editorial "Young Men Again" in the January issue of TEXTILE WORLD.

I am very interested in going to the USA and keen to work hard if it means advancement. I would appreciate it very much if you would put me in touch with an establishment that would be interested in me.

My qualifications are: Scottish School Certificate (lower) in seven subjects; London Institute of City and Guilds, intermediate and final certificates in jute spinning; and Dundee Technical College Certificate for three years part-time study in jute manufacture.

The latter certificate includes: Jute Spinning I and II, Jute Weaving I and II, Textile Mathematics I and II, engineering science, engineering drawing, and textile fibers.

I have also completed a ten-months course with a textile manufacturing company in which I studied production from the practical point of view in spinning, weaving, and finishing plants.

W.K.

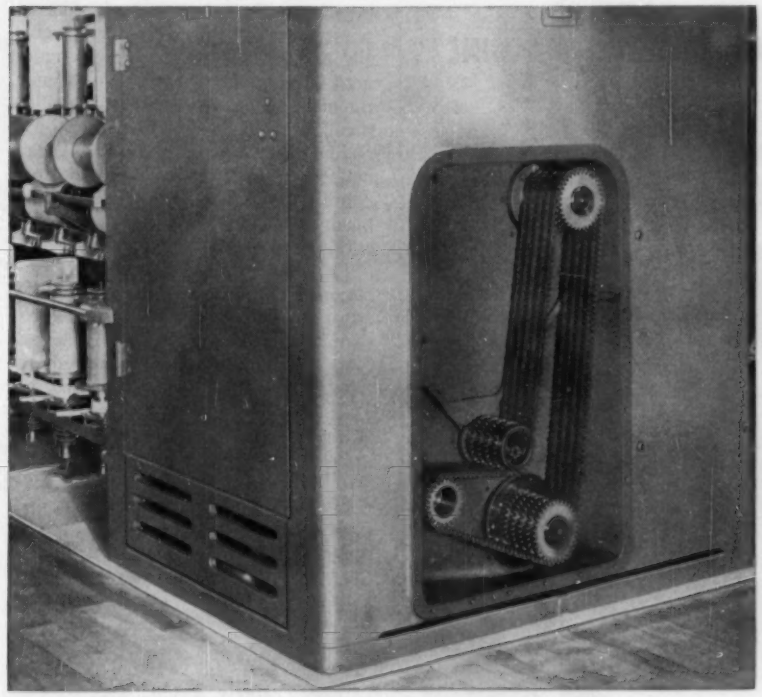
Manchester, England

SANFORIZED NOT A PROCESS

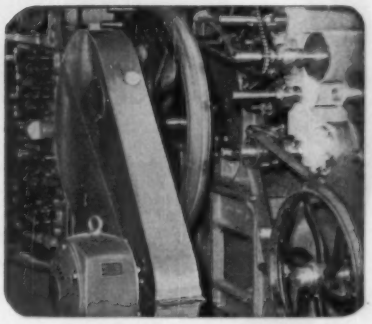
Dear Editor:

Our attention has been called to an article entitled "Standard Bleachery Cut Yardage and Upped Profits" beginning on page 120 of your December, 1956, issue. On page 194 we note

Here's the record of LINK-BELT silent chain



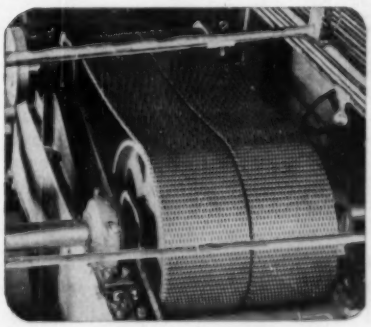
How do your drives compare?



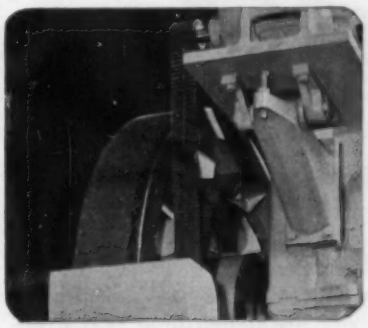
. . . REVERSE ROTATION OF SHAFTS. Link-Belt duplex silent chain — capable of driving from either side of chain — operates multiple shafts on this uptwister.

On fixed center drives, proper chain tension can be maintained with automatic or manual adjusters.

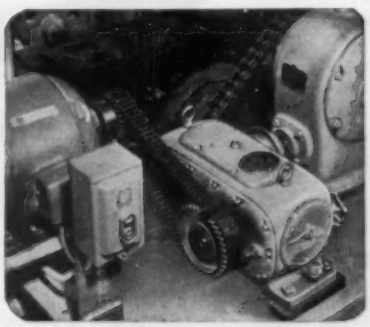
. . . UNDER ADVERSE OPERATING CONDITIONS. Humidity, heat, cold do not lower this chain's better than 98% efficiency.



. . . AT LARGE OR SMALL HP. A versatile line, these drives are available from fractional to thousands of hp.



. . . WITH LARGE RATIOS. Operates efficiently on extremely short centers at ratios as high as 10-to-1.



. . . IN LIMITED SPACE. Easy to assemble in close quarters, silent chain permits built-in drives, compact housings.

. . . AT HIGH SPEEDS. After 13 years on this newspaper press at speeds up to 4700 fpm, silent chain is still efficient.

For more details and advantages . . . for complete selection and technical data — ask your Link-Belt office or authorized stock-carrying distributor for a copy of 88-page Book 2425.

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KWG Double Reel Skein Dyeing Machine —all stainless steel unit built in capacities to 1000 pounds.

FOR QUALITY DYEING

WITHIN INCREASED BUT MORE NORMAL TEMPERATURE and PRESSURE LIMITS

Perfection in dyeing—for natural and the new synthetic fibers—is yours with KWG Skein Dyeing machines. Rugged construction . . . improved **'Ferris-Wheel' performance . . . give you the penetration and evenness** of color—the permanence of tone—for that extra measure of sales appeal—without concern for costly high-temperature, high-pressure methods. Dual-operations possible including scouring, dyeing and shrink-proofing, or scouring, bottom bleaching and dyeing of pastel shades.

You can point the way to extra sales . . . extra profits . . . today by writing Klauder Weldon Giles. A KWG representative will be glad to survey your needs. If necessary, he'll design special equipment to your specifications. There's no obligation.

Klauder Weldon Giles MACHINE COMPANY

ADAMS AVENUE & LEIPER STREET • PHILADELPHIA 24, PA.

the sentence, "Others may be given the Sanforized finish."

While we appreciate your mentioning our trademark, we would like to point out that this reference is actually a misuse of our registered trademark inasmuch as Sanforized is not the name of a process or method of shrinking.

The term "compressive shrinkage" denotes both the process and the machinery that effects the shrinkage. The machinery is more correctly identified as a compressive-shrinking range.

However, even though the vast majority of Sanforized-labeled fabrics are processed over the compressive-shrinkage machine, use of the trademark Sanforized is not limited to fabrics that have been processed by compressive shrinkage.

Today, it is possible to control shrinkage chemically to the Sanforized standard by the use of reliable resins. A fabric can carry the Sanforized label regardless of the process employed providing it meets our specifications. Actually, it is the checked measure of shrinkage rather than the particular process that permits use of the trademark.

C. J. Moroney, Jr.
Cluett, Peabody & Co., Inc.,
New York, N. Y.

WHY TEXTILES CAN'T ATTRACT YOUNG COLLEGE GRADUATES

Dear Editor:

Your editorial in the January issue points out some of the shortcomings of the textile industry. It is refreshing to see that some responsible person in textiles not only sees the picture clearly but is also willing to express his thoughts. The time for setting the industry straight on modern personnel thinking and policy is long overdue.

Having graduated from one of our leading textile schools about 20 years ago, I often consider the value of a textile education to my own career as well as a possibility for my son.

I work for one of the best companies in or out of the textile field, but I have worked for others who are more nearly representative of the industry as a whole. Considering my own experiences and those of many friends, my evaluation of textiles as a career is such that I will advise my son to seek a livelihood in another, more-progressive field.

I see mill owners and managers publicly deplore the sad condition of the industry, the unfairness of the

CONTINUED ON PAGE 12

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Another Goodyear First:

V-Belts *with the* Green Seal

stay matched from factory to drive

The Green Seal signifies true dimensional stability. It means that now when you reach for a matched set of V-belts, you can be sure they're matched – no matter how long they've lain on the shelf. And that means longer life and a minimum of down time.

It used to be that only steel-cable V-belts by Goodyear were length stabilized. But now, through the miracle of Triple-Tempering, they've been joined by all the other Goodyear Industrial V-belts.

Triple-Tempering is the exclusive process wherein synthetic cord is carefully brought to the peak of strength and stability by controlled tempering with Tension, Temperature and Time. And this gives you not only *length* stability in storage, but greater shock- and stretch-resistance on the drive.

In addition to 3-T load-carrying members, the Green Seal also brings you "balanced construction." This means each component of the belt is specifically designed to its job to give you cleaner, smoother, longer running which adds up to maximum, trouble-free horsepower hours at minimum cost.

The next time you need V-belts, be sure they're wearing the Green Seal–the mark of a V-belt made with the technical know-how of the world's largest rubber company. They're readily available at your Goodyear Distributor. Or write for details to Goodyear, Industrial Products Division, Lincoln 2, Nebraska, or Akron 16, Ohio.

DIMENSIONALLY STABLE V-BELTS by

GOODYEAR

THE GREATEST NAME IN RUBBER

Green Seal–T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

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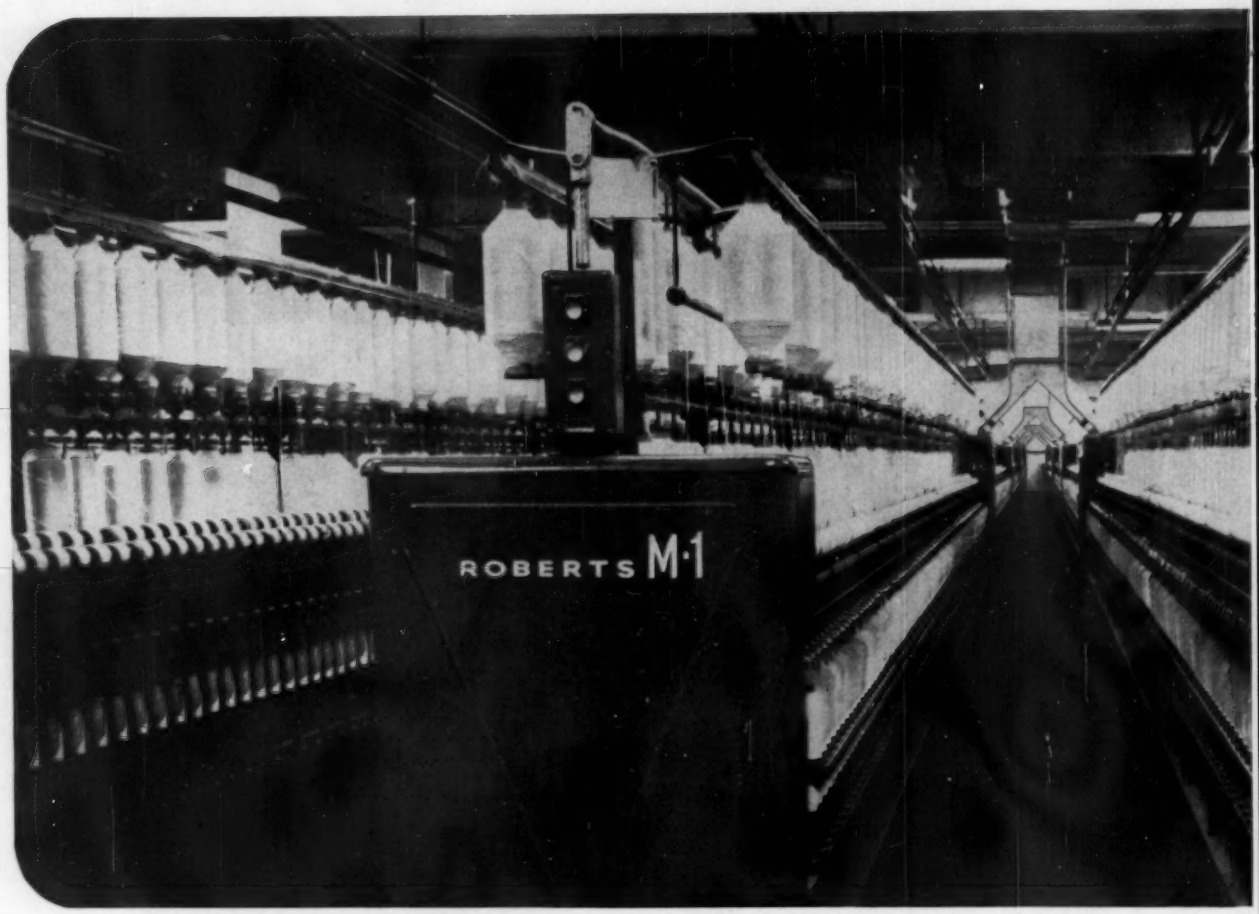

ROBERTS SPINNING

Today's standard for production, yarn quality and investment

Roberts Spinning is setting today's standard for comparison in high drafts, package sizes, roving bobbin sizes, front roll speeds, ends up, yarn break factor—and at the lowest investment cost per spindle.

TRIED AND PROVEN. The Roberts M-1 Spinning Frame is simple and straightforward, free from radical innovations or gadgets. Its design has already been tried and proven in many successful applications. It embodies all the ball bearing features most wanted in a modern spinning frame, giving highest production and lowest maintenance.

ROBERTS DRAFTING. Roberts Double-Apron Drafting produces highest break factors, best yarn evenness and lowest ends down in a range of drafts from 10 to 60, for yarn numbers from 2's to 100's, in cotton, synthetics with staples up to 3 inches long, or blends.

LARGE PACKAGE FLEXIBILITY. One basic model of the Roberts M-1 Spinning Frame is adapted to run warp bobbins with lengths from 10 inches to 12 inches as well as filling quills. Standard gauges from 3 inches to 4½ inches can be arranged to employ the maximum desirable ring size suitable for the yarn number and twist constant.

RUGGEDNESS WITH SIMPLICITY. The frame chassis is of rugged construction. The working motions use ball bearings for every turning and oscillating motion where practical. The all-ball-bearing head design is outstanding in its simplicity and flexibility. All gears in the head are hardened and have one pitch, one width, one bore and one keyway, making them completely interchangeable. Greased-for-life bearings are used in the head and all plain bearings and studs are eliminated. Draft and lay constants are adjusted simply over the complete range of yarn numbers.

STANDARD FEATURES. Standard equipment includes Roberts Ball Bearing Spindles, Roberts built-in UnitVac Suction Cleaning. Roberts AeroCreels are available in every desired package size, single or double.

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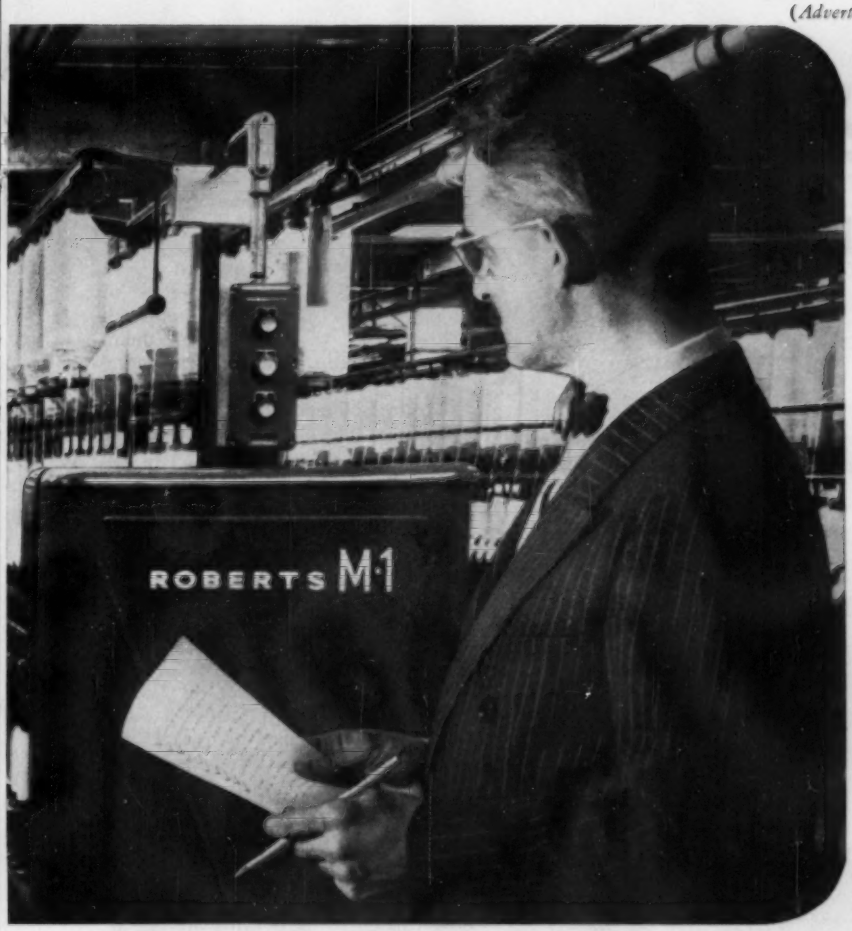
(*Advertisement*)



Part of a spinning room in a mill with over 100 Roberts 25-inch Spinning Frames.

ROBERTS SPINNING AVAILABLE IN 3 FORMS PROVIDES MODERNIZATION AT LOWEST COST

The cost-cutting, performance, and quality features of Roberts Spinning can be obtained through changeovers to the mills' existing spinning frames, or through rebuilt frames supplied by Roberts, as well as Roberts M-1 Spinning Frames. Roberts Proposals for Spinning Modernization provide comparison on these 3 methods.

CHANGEOVERS to the mills' existing machinery can include drafting systems, spindles, creels, suction cleaning, tape drive, gearing, or any combination of these to provide the maximum return for minimum expenditures. Performance equal to new can be built into mills' existing machinery if desired in every manner and form.

ROBERTS MODEL 55-R REBUILT FRAMES provide complete new spinning performance making use only of non-functional support members of older frames, thus affecting a substantial savings and taking advantage of the all-new spinning performance and features identical to all-new frames.

ROBERTS M-1 SPINNING FRAMES are excitingly new from the ground up, with all ball bearing features. They are available in 39 inch, 36 inch, and the space-saving 25 inch widths.

ROBERTS COMPANY
SANFORD, NORTH CAROLINA

ROBERTS SPINNING NEWS

TOP ROLL SUSPENSION USES BALL BEARINGS IN ALL THREE LINES

The Roberts Ball Bearing Top Roll Suspension System uses double-row ball bearings in front, middle and back lines and incorporates many other important design advantages.

Cots have ½" hole diameter, revolve together making lap removal simpler, and are buffed on standard equipment, without attachments. Full length revolving clearers are used.

Front and back rolls are interchangeable making sequence buffing possible.

The double-row bearing raceways are ground directly into ½" shafts. Bearings are grease-packed for life and a 2-piece labyrinth seal protects them from lint entrance and roll picker damage.

The system has controlled self-alignment. Conventional deadweighting or new spring weighting is optional.

An alternate arrangement also available employs a ball bearing top roll and special suspension on the front line only with Roberts Cap Bars and solid top rolls on middle and back top rolls.

Roberts also continues to offer its No-Oil Cap Bar and Saddle system for all three lines, now installed in more than 2½ million spindles.

ROBERTS M-1 SPINNING FRAMES MADE IN THREE WIDTHS

Where it is desirable to match frame widths already in the mill, Roberts makes and incorporates all of its design features of its new frames in standard 36 and 39 inch widths. All the ball bearing features and details are built into these wider frames.

The Roberts M-1 25 inch wide Spinning Frame permits 5 frames instead of 4 in a 25 foot mill bay, retaining 30-inch aisles and increasing yarn production 25% in the same place.

Creel designs have been arranged for the frames to handle 12 by 7 roving packages on as low as a 3-inch gauge frame. 10 by 5 double creels are designed for 3½ inch and larger gauges. In all cases, widths and heights of creel are not excessive with consideration being given for ease of creeling for the operators.

ROBERTS "TURNKEY" ERECTION SERVICE

Roberts "Turnkey" Erection Service is available in all 3 modernization arrangements: buying complete new spinning frames, buying modernized frames, or changing over the frames on your floor. In each arrangement, Roberts is entirely responsible for installation and performance.

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Will it Fade?

BE SURE with FADE-OMETER and LAUNDER-OMETER tests

A battery of Fade-Ometers at Sears, Roebuck & Co. laboratory

Launder-Ometer
Standard testing machine
of the A.A.T.C.C.

New dye colors, new fibers, yarns, prints, and the many combinations of dyestuffs all present the question of color fastness, reaction to light laundering detergents, shrinkage, bleeding and mechanical action.

Atlas-Ometer tests provide reliable, factual answers. Precision controls in the Fade-Ometer and Launder-Ometer permit careful regulation of all factors. Any test program can be duplicated exactly whenever desired in the development of a product or for quality control in production.

Dyestuffs and fabrics that stand up in Fade-Ometer and Launder-Ometer tests, will prove satisfactory in service. Producers of soft goods who can give a specific color fastness rating to the product have a sales advantage both pricewise and in consumer acceptance.

ATLAS ELECTRIC DEVICES CO., 4114 N. Ravenswood Ave., Chicago 13, Ill., U. S. A.

Sales representatives in principal cities throughout the world.

government, and the demands of labor while they make record profits and build new expansions. I see mill owners and managers as public officials openly denounce plans for expansion and improvement of public schools in their communities (because taxes would be increased) while they send their own children to private schools.

These ills are not characteristic of textiles alone, but many industries have done something about them. Other industries operate with more-advanced policies, with more fairness and satisfaction to those employed by them. In my opinion, the youth of today will continue to seek a place in other industries unless textiles improves its personnel practices.

A.T.M.

Greenville, S. C.

THIS ENGINEER FLED HUNGARY

Dear Sir:

I read your article in TEXTILE WORLD about the need of trained men in the textile industry. I am a graduate who wishes to work in the United States. I have a mechanical and textile engineering diploma and am now employed in an automatic powerloom factory as an engineer.

My family and I came from Budapest as a result of the well-known Hungarian events. It is our ardent wish to go to the United States.

I have worked with textile machinery, construction, research and have written many special books, most of them from my own research work. I think I can make myself useful to the American textile industry.

MICHAEL BORBELY

Ruti, Switzerland

OUR COVER

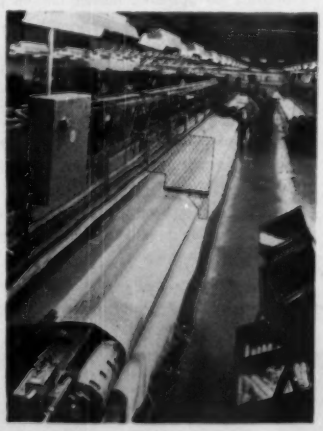

Photo by Coxe Studios, Greenville, S. C.

this Year, as usual...

the high-fashion, high-profit fabrics

are woven on C&K AUTOMATIC BOX LOOMS

CROMPTON & KNOWLES CORPORATION C&K WORCESTER, MASS. U.S.A.

CROMPTON & KNOWLES *Corporation*

MANUFACTURER OF THE WORLD'S LONGEST LINE OF AUTOMATIC BOX LOOMS

WORCESTER 1, MASSACHUSETTS, U.S.A.

CHARLOTTE, N. C. · PHILADELPHIA, PA. · ALLENTOWN, PA.

Crompton & Knowles Jacquard & Supply Co., Pawtucket, R. I. · Crompton & Knowles of Canada Ltd., Montreal, Quebec

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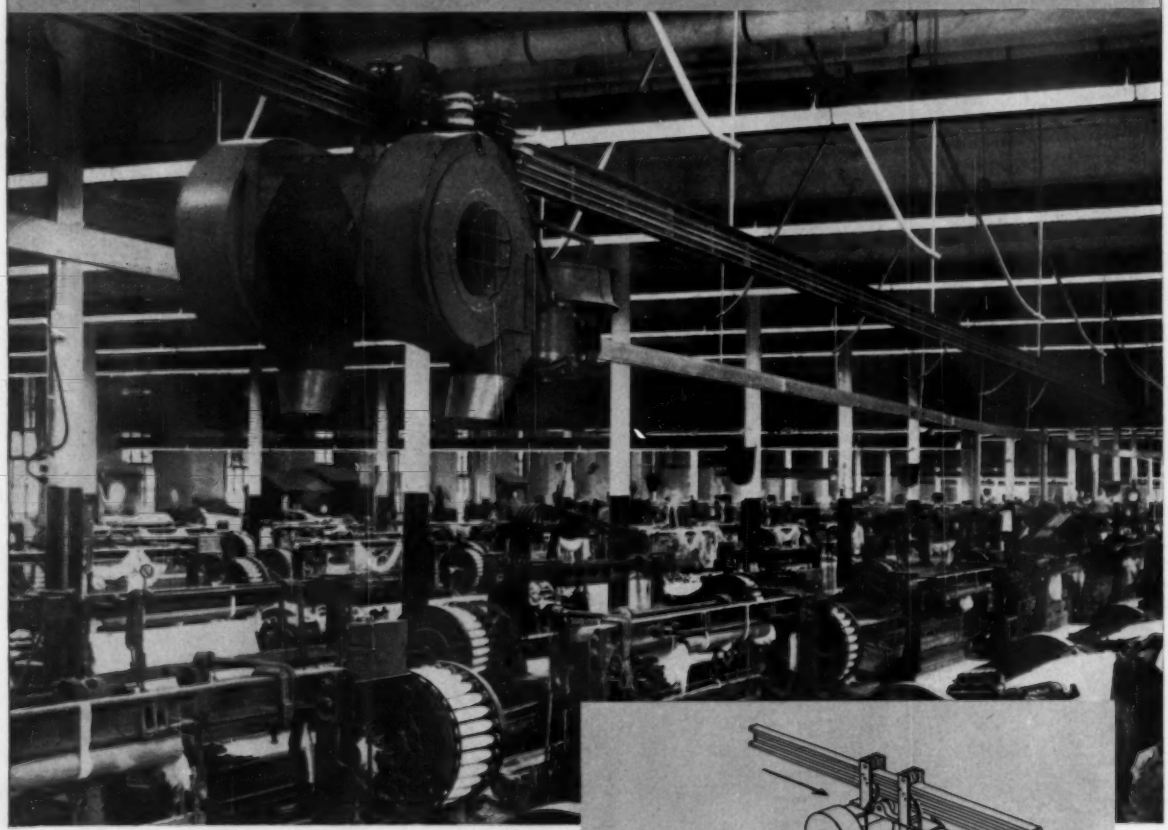
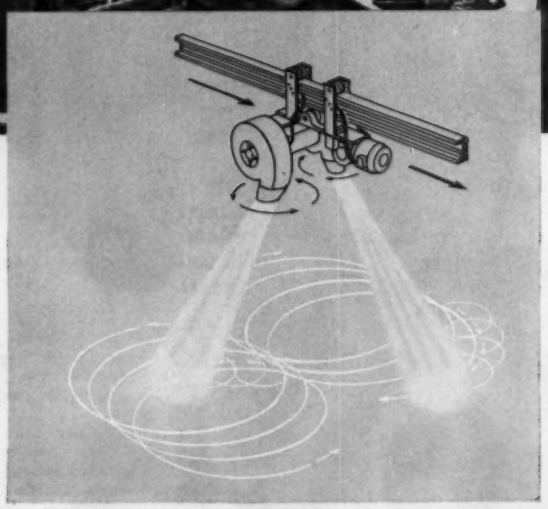
Amco Introduces it's New

Heliclone Loom Cleaner



Provides automatic, continuous cleaning of looms and ceiling • Drastically cuts cleaning costs • Steps up production • Improves quality of fabric • Reduces fire hazard • Improves weave room appearance • Boosts employee morale • Can be incorporated with beam handling equipment.

Write for further information, or ask to have an Amco engineer call.



Swiftly whirling outlet nozzles, driven by the air stream, direct the air jets at an acute angle in overlapping, circular paths. The result is a rapid series of high-velocity bursts of air over loom and warp surfaces for complete cleaning action.

AMERICAN MOISTENING COMPANY *Air Conditioning Systems and Textile Mill Equipment*

Executive Offices: Cleveland, N. C. Branches in Atlanta, Boston, Camden, Providence, Toronto

A FAMOUS EDUCATOR'S ADVICE

to men who want to become Textile Executives

Malcolm E. Campbell,
Dean, School of Textiles,
North Carolina State College,
Explains Value of Executive Training

The demand for textile executives is greater today than ever before... and the need for top level administrators —men who can "run the show"—is especially acute!

Here's what Dean Campbell says about a training program which may qualify you for such a position:

"In 1923 I enrolled with Alexander Hamilton Institute, and thus have a personal knowledge of the value of the courses you offer. Many times in the intervening years I have recommended the Alexander Hamilton Institute courses to young textile graduates. As a matter of fact, at the present time three of our graduate students are enrolled with your Institute. I sincerely believe that you provide an unusual opportunity for young textile graduates to supplement their technical training with a sound knowledge of business administration.

"Most young men just out of college have developed the habit of study to the point where it should not be too difficult for them to continue it, provided there is an incentive. I am sure that the knowledge they would gain by enrolling with the Alexander Hamilton Institute immediately after graduation would greatly increase their value to the textile organizations hiring them, and thus place them in a strong position to meet the competition for the executive positions to which they aspire."

The Alexander Hamilton Institute
71 West 23rd St., New York 10, New York

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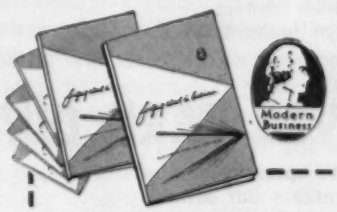

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LOWER SPINNING COST—.
Pneumafil's positive end pick-up and
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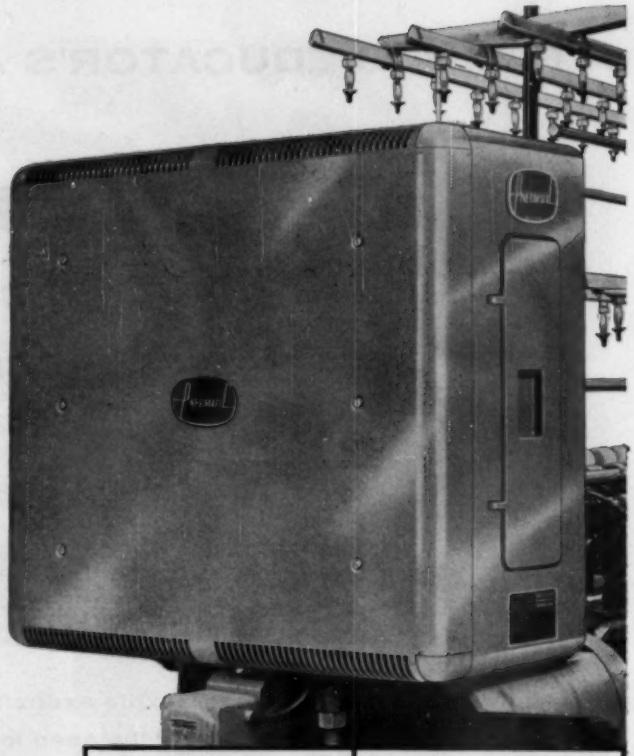
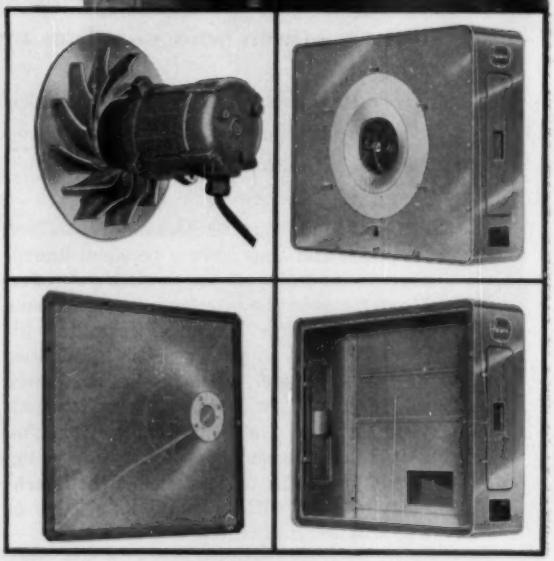
operate more sides than ever before!





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TEXTILE BUSINESS

Textile World

MAY • 1957

THIS MONTH'S HIGHLIGHTS

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OTC May Die This Year

•

Control the Textile Cycle?

•

Last-Half Upturn for Stocks

•

New Autos Change Fabrics

•

Tufted Bedspreads in Mills

•

Mills Tighten Credit Terms

•

Machinery Sales Are Off

Permanent Textile Exhibit?

The success of the World Trade Fair, which closed last week in New York's Coliseum, opened the eyes of many U. S. textile men to the promotion and business they may be missing.

Both the Fair and Britain's permanent exhibit established last year in London show that exhibitions help sell textiles.

Look now for renewed interest in the proposed World Fashion Center or some other permanent textile exhibition in New York for U. S. textiles.

Death of OTC This Year Is Almost a Certainty

The textile industry's worry over OTC is as good as over. There is less than a fifty-fifty chance that Congress will approve U. S. membership this year. The bill has less opposition than last year [TEXTILE WORLD, Mar., p. 17], but time is working against it.

The Commerce Dept. dragged its heels for three months before sending the bill to Congress, and the House Ways and Means Committee hasn't even scheduled hearings on it yet. The Senate won't act until the House has had its say. This time last year the House already had approved the measure.

The slow start of the OTC (Organization for Trade Cooperation) bill may cause it to bump heads with the foreign-aid bill, also running late because of the Administration's decision to rewrite the foreign-aid program. There are signs that Republican leadership will give the Administration its choice of getting approval of OTC or the aid program, but not both.

Another factor against OTC: protectionist sentiment is still growing in Congress, although it is less vocal and less aggressive than it was during the election campaigns last year or than it presumably will be again next year.

•

Nevertheless, the climate in Congress is less hostile to OTC than it was last year. Election-year pressure is off; and the textile forces that spearheaded the drive against OTC are less active this session, as they wait to see how the Japanese export quotas work.

The House Ways and Means Committee is almost certain to report out the OTC bill favorably. If there's enough time to get it to the floor, **there's bound to be a hot floor debate on it, and the outcome will be a toss-up.**

If the bill does clear the House and reach the Senate, it will get a warmer reception in the Senate Finance Committee than it did last year. Senators Paul Douglas and Albert Gore, both staunch supporters of liberal foreign-trade policies, have joined the Finance Committee; and Senator Eugene Milliken, arch protectionist, has left. At this stage it looks as though there would be only five sure votes against OTC in the fifteen-man committee.

Despite these favorable factors for passage of the bill, the time limitation will be hard to overcome.

•

OTC probably will be dead for good if it does not pass this year.

Next year the trade-agreements act (GATT) comes up for extension, and the fight over it will dominate the foreign-trade-legislation scene completely. Beyond that, the Administration probably would give up OTC as a lost cause if two successuve congresses failed to approve it.

"Feast-and-Famine" Cycle — Can It Be Controlled?

Pressure for voluntary control of the feast-and-famine cycle in the textile industry is gaining momentum.

Cotton manufacturers last month in Palm Beach, Fla., were talking about the economic soundness of holding mill operations to five days a week. And one synthetics manufacturer, Amerotron, announced that it would stick to a five-day week on synthetics throughout 1957.

Amerotron, J. P. Stevens, and others curtailed synthetics production late last summer and cotton and other rayon mills early this year. Since then inventories have improved, and synthetics mills are already feeling the effects.

How much long-range good this lesson in basic economics of supply, demand, and profits will have is a moot question. Most mills wait for others to do any curtailing necessary. Many mills contend that three-shift, five-day operation is a break-even proposition, that profits are made on the sixth day.

•

Others say that's true only because the present price structure is based on six-day operation. If the industry as a whole stuck to five days through lush periods, the towering peaks and deep valleys of production and profits would level out.

A great deal of the industry's woe comes from outmoded statistics and inept interpretation of those that are available, many management men think.

One key trouble is that no two people, especially economists, agree on the spread between demand and production capacity. One study will show undercapacity threatening, another serious overcapacity.

Result: nobody knows the true state of capacity vs. demand, and mills are more poorly prepared to interpret warning signals than other industries.

•

"We're operating in the dark," one mill president told TEXTILE WORLD. "Except for the bald fact that we're either selling or not selling cloth this week, we don't have much to go on. Government statistics are out of date before they're published, and they're based on things that don't have much meaning now."

Present measurements based on spindles, looms, spindle activity, hours worked, etc. do little else than shake confidence in the industry and invite overproduction, mill men say.

Equipment in textile mills is far more flexible than facilities in other industries, and tabulations don't give a dependable picture. For example, a production line in an automobile factory or a furnace in a steel mill has a fixed, known capacity. You can find out what total capacity is by adding up a few dozen production lines or a few hundred furnaces.

It's not so simple in textiles. The production of a spindle or loom can vary 100% or more, and the same spindle or loom may be changed from one type of production to another and run that whole range of variation. Or yarn or cloth may not even be made

Worsted Prices Up

Price increases of 7¢ to 15¢ a yard on worsted fabrics last month probably will be followed by other increases.

There's no real market softness in sight for worsteds, and wool prices keep going up.

Real buying pressure developed on the Boston wool market last month, and scoured wool advanced 7¢ to 10¢ a pound. Wool top was up 2¢ to 5¢ a pound, and raw wool on the Australian and New Zealand market continued its upward trend.

The price increase on fabrics only partly offset the wage raises of last fall and the increased cost of wool, mills say.

So far, price increases have hit only current fall and winter production; but about the same increases are expected for next year's spring fabrics—more, if wool keeps advancing.

Market Booms in Auto Seat Covers

Sales of automobile seat covers hit 12.5-million sets last year and turned in a volume of $250-million. That's a 10% increase over 1955, and another 10% improvement is expected this year.

A newcomer in this field last year was the so-called three-dimensional fabrics, often with decorative metallic yarns woven in. Seat-cover men describe them as made of "puffed fiber and jet-spun saran."

About three-quarters of the seat covers made are either plastic or woven paper yarns, and the other one-quarter are terrycloth.

Advantages of different materials are:

- **Terrycloth** is durable, fits well, and is inexpensive. (It accounted for 25% of all seat covers sold but only 13% of the dollar volume.)
- **Clear plastic** protects the seat but does not hide the color and texture of the original fabric. It accounts for about 20% of all plastic

on a spindle or loom. So adding up spindles or looms gives you a number—and little else.

What is needed is up-to-date statistics based on measurements that reflect the true state of the industry, mill men say. Nobody suggests measurements to be used. "The first step," they say "is to find out."

Moves to find out have started. The American Cotton Manufacturers Institute is increasing its economic and statistical activity, and plans are being drawn for a broad economic survey of the industry.

●

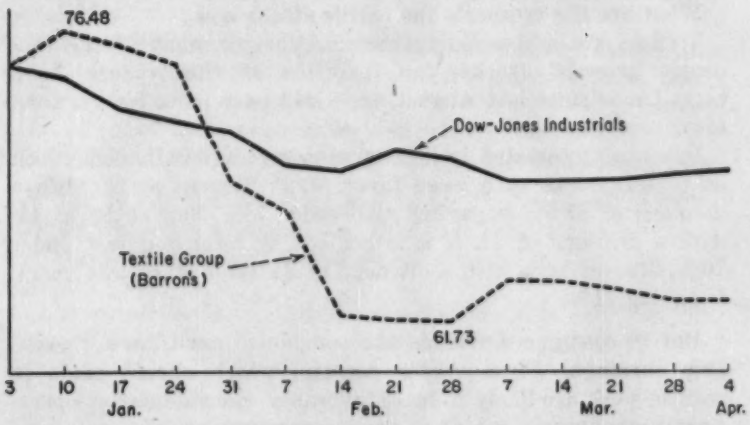
One of the most important things the survey will show, many mill men think, is that total capacity is such that only a five-day week or two-shift day will solve the industry's problems. If such is the case and it is established beyond doubt, it should be easier to avoid future market gluts.

Antitrust laws prohibit agreements on limiting production.

Nevertheless, supporters of better measurements say some good will come from showing mills that they make their own woes and that there is nothing inherent in textiles or the textile industry that makes wide cycles and low profits unavoidable.

Besides, they point out, nothing in the antitrust law says one mill can't curtail production and another follow suit. It's only "agreement," "collusion," "conspiring" that can't be done.

Stocks: Last-Half Upturn?



Textile stocks have made little recovery of the decline that started in mid-January on the news of production cutbacks and unfavorable earnings and dividends reports.

From the year's high of 76.48 [Barron's textile-group average] in the week ending Jan. 10, the group dropped to a low of 61.73 on Feb. 28, a decline of 24%.

Like the general-market averages, the textile group could manage no more than an unimpressive sidewise movement throughout March. By the week of April 4, the average had risen to only 62.42, a 1.1% gain.

Slightly better-than-average performance was posted by a few individual stocks, also as occurred in the general market. James Lees & Sons, for example, dipped only three-quarters of a point

seat covers. Chief disadvantage is that it doesn't "breathe" and is therefore hot in summer and cold in winter.

• **Woven paper** is the coolest of all seat covers and is inexpensive ($15 to $25 retail).

• **Woven saran** is the easiest of all covers to keep clean and is one of the most durable. Cost: $20 to $25.

• **Solution-dyed synthetics** give fine texture and durable color, without static shocks. Cost is a little high, $20 to $50.

• **Three-dimensional synthetics** fabrics are the most porous of all seat covers. Cost is high, but the look and feel of luxury make them suitable for the high-price market.

Union Fails at Peerless

More than a year of union organizing effort went down the drain at Burlington Industries' Peerless Woolen Mills plant, Rossville, Ga., early last month.

The union petitioned the National Labor Relations Board for a vote, and the company advised NLRB that it was ready for the election. Then the union withdrew its petition.

This failure was the union's fourth fiasco at Peerless in recent years. It was also another instance of the union's failure to crack Burlington, one of its announced prime targets.

Blue Is Back Again

A spot-check among cutters by the Jersey Institute indicates that the greatest color interest for fall in women's wear centers on blue. Royal blues look like the most important shades.

Bright porcelain blue is favored for blouses and indigo and navy for suits and coats. Violet shades, spurred by the Perkins Centennial last fall, are still going strong.

New-Home Furnishings Will Be Lower This Year

Mills on home-furnishings fabrics find no joy in the March report of new-housing starts. New homes started that month amounted to an annual rate of 880,000, 20% below March, 1956.

Builders now generally agree that the million-a-year rate, which held for the last eight years, can't be sustained this year. Blame is placed largely on tighter mortgage money.

Some pressure has been exerted in Washington to have interest rates raised to 5% on Veterans Administration mortgages to lure money into the building trade, but nothing concrete has been accomplished.

Observers say such a move now wouldn't increase housing starts much this year.

Hosiery Capacity Drops

Overcapacity in full-fashioned-hosiery knitting was given another significant cut last year. The number of mills in the U. S. dropped 12%, and the number of machines in place dropped 10.4%.

These cuts continue a period of capacity correction that started in 1949 for machines and 1952 for mills.

In the last five years, the number of mills dropped from a little over 800* to 488, a decrease of about 40%.

Machines dropped from slightly over 12,000 in 1948 to slightly over 6,000 early this year, a decrease of almost 50%.

•

But these loss figures don't tell the whole story. While over-all full-fashioned-hosiery capacity was decreasing, two other forces were at work.

• **Women's seamless hosiery** was growing by leaps and bounds. Starting from nothing after World War II, capacity grew to 21,983 machines in 104 mills by the end of last year.

• **Significant changes were going on in full-fashioned mills themselves.**

* *Statistical Survey, Textile Machine Works*

from Jan. 3 to Feb. 28 and then rose 3¾ points to 36¼ by April 4 on the strength of excellent sales, earnings, and dividend records last year [Textile World, April, p. 20].

J. P. Stevens & Co., generally regarded as one of the outstanding textile stocks, wavered within a narrow range—22¼ on Jan. 3, to 20⅜ on Feb. 28, to 21¼ on April 4.

•

Most issues moved sideways or down, as this list of nine stocks on the New York Stock Exchange shows:

	Jan. 3	Feb. 28	Apr. 4
American Viscose	35¾	34⅜	35
Burlington	13½	11⅝	11⅜
Cone	14½	13⅞	13⅜
Dan River	12⅛	11¾	11¼
Jas. Lees	33¼	32½	36¼
Lowenstein	21⅝	19	19⅛
Pacific	32	29½	29
Reeves	11⅞	9½	9
J. P. Stevens	22¼	20⅜	21¼

As price moved down, return on investment in shares in the form of dividends rose.

On Jan. 3, the average price of these nine stocks was 21.87 and the average dividend $1.31, a return of 5.99%. When the average price dipped to 20.6 on April 4, with no cuts in dividends, the average return was 6.36%. [Burlington reported earlier that a dividend cut may be forthcoming in the second quarter, but no actual cut has been announced yet.]

•

What are the prospects for textile stocks now?

Traders are still avoiding them. Although many of the fabulous "growth" stocks—the favorites of the traders—have turned sour since last August, they still have more bounce than textile stocks.

Investors interested in long-term gains and/or dividends look on textile stocks with more favor. J. P. Stevens at 22, with a dividend of $1.50, is paying just under 7%. Burlington at 11, with a dividend of $1, if it is not cut, is returning just under 10%. Reeves at 9, with a dividend of $1 (plus stock last year), is paying 11%.

But to continue dividends the companies must show reasonable earnings. First-quarter reports, which should come in volume soon, are likely to be unfavorable. Second-quarter operations probably will not show much improvement.

Most observers do not expect widespread dividend cuts, but some reductions may come. If so, prices may suffer some further declines.

•

A sharp upturn in mill production and market prices, particularly cotton and rayon, is expected by most mill men in the third and fourth quarters. If it comes, as is likely, earnings and dividend prospects will be considerably improved. Stock prices are likely to follow.

As some mill-men investors put it, "If you've got the nerve to buy textile stocks and sit on them through the second quarter, you ought to make some money in the second half."

For Auto Fabrics – Sharp Swings Ahead

Big swings in the auto industry's use of textiles are showing up this year.

Even with Detroit still expecting first-half sales to better last year's, the industry's consumption of textiles may improve only in tire cord.

Fabrics for interior use are being nudged by leather and plastics.

Station wagons, which use practically no textiles in interiors, are soaring at the expense of passenger cars. In the first quarter, station-wagon production was a whopping 33% above the same period in 1956. About 235,300 units will be produced this year. The increase represents a loss of about 1,000,000 yds. of textiles.

•

Further inroads by leather may be coming.

Auto stylists and engineers like it for two reasons: richness and the fact that it can now be kept cleaner. Stylists say you could always keep leather cleaner than fabric. Now the difference is greater than ever as a result of new techniques for spraying on plastic coatings to improve soil resistance.

Polyurethane plastics also are crowding textiles for auto-headliner use. They have one serious drawback: they expand and contract so much that they have to be "floated" from the metal roof.

Nevertheless, stylists give a clear warning: fabrics just aren't sound-absorbent enough, and the plastics are. They intend to use them more and more.

In fabrics themselves, **there's a strong move toward all-metallic or metallic-decorated fabrics and more-subdued colors.**

With the contrasting sales experience this year of Chrysler and General Motors happily or wryly in mind, Detroit designers and stylists are acutely conscious of change and auto-interior beauty.

Mills doing business with auto manufacturers will feel the effcts of this attitude the rest of this year and next year.

Mills Take Over in Tufted Bedspreads

Tufted bedspreads, representing a $50-million-a-year market, are being taken over by industry from handicraftsmen and "back-yard" operators. Eight mills now produce about two-thirds of all tufted bedspreads.

The net decrease of 68 mills resulted from the liquidation of 82 mills and the building of 14 new ones, 13 in the North and one in the South.

Scrapping machines resulted in an upgrading of gauge. Over one-third of all full-fashioned machines in place now are 60-gauge and about 7% are 66-gauge. These two gauges have been steadily gaining as percentages of total machines for the last five years or more.

•

The end of capacity reduction is not yet in sight, hosiery men say. Further reduction must be made to bring the hosiery business to a reasonable profit level.

Average net profits on net sales for about 70 hosiery mills was only 1.74%** for the five years 1951-55. Only in 1951 did they rise above 2%, and they went only to 2.26% that year.

But over-all profits figures are misleading, as usual.

In 1955, a 73-mill average net profit was 1.68% of net sales. But 25% of the mills managed average profits of 3.31%. The lowest 25% netted only 0.25%.

These figures make it obvious that further weeding out is needed.

** *Dun & Bradstreet*

Bates Goes to Arbitration

Time has run out on the Bates-TWUA wage disagreement. Bound by terms of the contract, the issue now rests in impartial settlement. Arbitrators have been appointed, but observers believe it will be at least a month before a decision is handed down.

Representing TWUA is Cotton Director Victor Canzano; for Bates it is Chief Negotiator George Bridge. Impartial member is James Healy of the Harvard Law School.

At issue: TWUA wants a 5¢ hourly increase; Bates wants a temporary 8½¢ hourly cut. Contract terms bind the discussion to wages only.

Reason: new machines put a complete design in a bedspread in one run.

Overshadowed by the fabulous growth of tufted rugs, tufted bedspreads nevertheless have been growing steadily. They now represent 60% of the total bedspread market.

Figures on production and sales are slow coming in, and they don't go back far. But an idea of the importance of this market is given by 1955 and first-half 1956 figures:

1st half 1955—$21,513,000
2nd half 1955— 28,865,000
1st half 1956— 20,500,000
2nd half 1956— 26,572,000

Sales zoom late in the last half because tufted bedspreads are a favorite family Christmas gift. Mill prices range from $3.60 each upward. One mill has a range from $6 to $55, with $7 its production average.

•

Higher production, lower manufacturing costs, and variety of patterns possible with the new machines spell the doom of tufted bedspreads as a homecraft and probably as a small-time mill operation.

Only one operator is needed for one of the new machines, and production per 8-hr. shift is 100 bedspreads on a pattern-roll machine, 225 on a $\frac{1}{8}$-in.-gauge machine, and 300 on a $\frac{3}{8}$-in.-gauge machine.

Similar multineedle machines, forerunners of carpet-tufting machines, are handicapped by low production and severe pattern limitations. For example, they won't make overlay patterns. The new machines will.

Key to the wider pattern range is the use of pattern rolls to control individual yarn ends, as they are controlled on jacquard looms.

How far tufted bedspreads may go is a guess. It would be surprising if they take the other 40% of the market. And the growth of total bedspread use is likely to be slow, probably in proportion to the increase in population and number of households.

One possibility is production for export. Tufted products are catching on in other countries, particularly in England, Belgium, and Australia. An important overseas market might be developed.

Mills Tighten Credit

A forward step is under way in synthetics mills in tightening credit terms. Synthetics fabrics are now being sold on 30-day-net terms instead of 60 days by most major producers.

This move reflects the more-favorable position of synthetics in the market and probably signifies improved profits pending.

Which comes first, better profits or shorter collection periods, is not certain; but that a relationship exists between them is

Bates has already made up its mind to close its Androscoggin rayon fine-goods division at Lewiston, Me. While the company has threatened to close the big York Division at Saco, with close to 1,400 workers, it hints that a settlement leaning its way could save the mill.

Bates has about 5,500 workers in five Maine mills. Decision in the union's favor might see the employment figure slashed to 4,000 or less.

Bates' sales in 1956 were $58,387,988, off from $60,665,164 in 1955. But net income slumped from $2,139,011 in 1955 to $925,653 last year.

•

A sudden flare-up at three Fitchburg Yarn plants in Fitchburg, Mass., when 750 workers walked out, was hastily settled on a compromise basis with the union taking a 2¢-an-hour cut.

•

Next step with textile labor involves 14 Northern carpet and rug mills where TWUA has asked for a general wage boost and increased fringe benefits. Deadline is May 30 and neither side has made any significant moves.

Business has been good in floor coverings, but movement to the South has taken some of the bloom from the rose as far as the union is concerned. But betting in union circles is that there will be gains at least in fringe benefits if not in actual straight wages.

Italian Fibers Make a Bid

The U. S. synthetic-fiber market took note of a resurging giant last week at the World Trade Fair in New York's Coliseum. Snia Viscosa, fully recovered from the setbacks of the war, is aggressively seeking U. S. business.

Since Snia reentered the American market in 1947, sales have been limited to two fibers: rayon staple and Vibren for carpet yarns.

Last week it showed U. S. buyers its complete line of 14 fibers and

shown by a Dun & Bradstreet study of 40 to 48 cotton mills. The same pattern would hold for synthetics mills.

	Collection period	Net profits on net sales
1951	27 (days)	3.86(%)
1952	34	1.30
1953	31	3.59
1954	36	1.68
1955	34	2.71

A further breakdown of the 1955 record also shows that more-profitable mills maintain a shorter collection period.

46 mills	Collection period	Net profits on net sales
Upper quarter	14 (days)	3.87(%)
Middle half	34	2.71
Lower quarter	43	1.80

Shortening credit terms, of course, will not increase profits. But since the two seem to go together, one mark of good management is to hold credit terms down.

Machinery Sales Are Off

Textile-machinery manufacturers, like many other industries, are revising their 1957 sales estimates downward. First-quarter sales of machinery and supplies to mills were not up to the same period last year, and the second quarter promises little improvement.

Reasons: production cutbacks and profits squeezes in mills. Supplies are bought and used by mills in direct proportion to running time, and capital investments for equipment largely follow mill-profits patterns.

In the fourth quarter last year, manufacturers and suppliers were looking for a 3% to 6% sales increase this year [TEXTILE WORLD, Feb., p. 97]. Makers of spinning and weaving equipment, representing the largest dollar volume in the industry, collectively expected a 4.6% increase.

●

But sales so far are not up to estimates. As loom-builder Crompton & Knowles puts it, "Incoming orders for textile machinery are poor. Over-all, the first half will compare unfavorably with the first half of last year."

Draper Corp. reports, "Sales in the first quarter were not as good as last year, and we expect a further slide in the second quarter."

Strong pickup in the last half is expected.

There is serious talk by mills in favor of maintaining the present five-day work schedule, even when fall and winter buying improves prices and sales volume.

If the sixth day is not added, sales of supplies and replacement parts may continue at about the first-half level. But there should be improvement in capital-goods sales with improved mill profits.

yarns, including two new products: Rilsan (castor oil) fiber and Papertex, a resin-filled, loosely woven nylon fabric.

Snia has 59 plants and 75,000 employees engaged principally in producing and selling fibers and yarns. It does business in 75 countries.

With Snia's know-how and the high U. S. regard for Italian textiles, U. S. producers recognize that Snia could become an important factor in the U. S. fiber market.

New Synthetic Fiber

A new synthetic fiber made from the waste product lignin in pulp and paper production was announced last month by Rayonier, Inc.

It is a polyester, with tensile strength up to 4.4 grams per denier, a melting point of 419° F., good dyeing properties, and low water absorption.

Rayonier is not interested in producing the fiber but may sell the raw material in the form of protocatehuic acid.

Wool Preferred for Jackets

Sports jackets and toggle coats for fall and winter wear are leaning heavily toward wool in charcoal, blue, and brown, Phoenix Mfg. Co. reports.

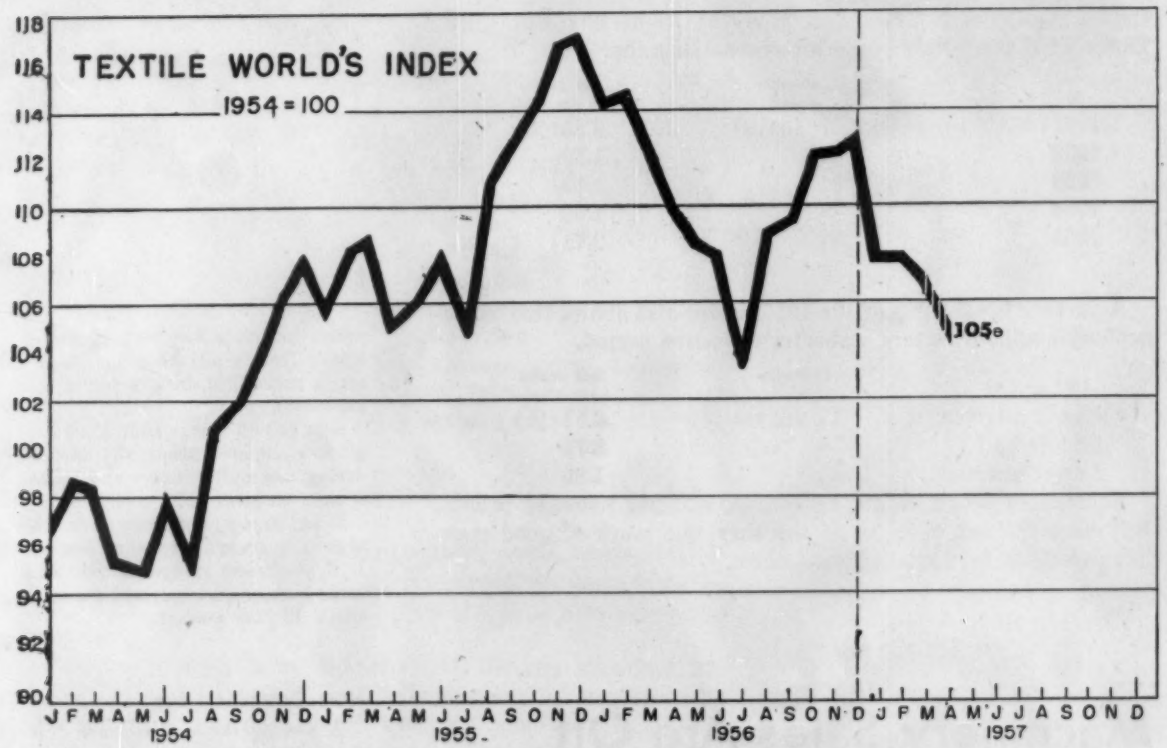
The preference for wool over other fibers was strong last year and has gained momentum this year.

Tufted Rugs Still Growing

The growth of tufted rugs and carpeting has not yet reached the leveling-off point.

Mill shipments of these products in the last half of 1956 were valued at 18% above shipments in the first half and 11% above the last half of 1955.

Scatter rugs and bathmats increased 20% in value in the last half of 1956 over the first half. Larger rugs and carpeting gained 17%.



Index of manhours worked in the textile industry adjusted for changes in productivity

Textile World's Monthly Indicators

	Latest Month	Last Month	Year Ago
Textile World's Index (1954 = 100)	**105**	**107**	**110**
Employment (thousands) B.L.S.	1,011	1,016	1,072
Production Workers (thousands) B.L.S.	921	925	981
Weekly Earnings B.L.S.	$58.20	$58.50	$57.06
Hourly Earnings B.L.S.	$1.50	$1.50	$1.43
Weekly Hours Worked B.L.S.	38.8	39.0	39.9
Production Index (1947–1949 = 100) F.R.B.	114	112	114
Wholesale Price Index (1947–1949 = 100) B.L.S.	95.4	95.7	95.9
Manufacturers' Sales (million $) Commerce	1,184	1,100	1,124
Manufacturers' Inventories (million $) Commerce	2,672	2,672	2,477
Inventories to Sales Ratio	2.26	2.43	2.20
Exports (million $) Commerce	175.3	210.0	63.6
Imports (million $) Commerce	98.4	78.2	104.5
Stock Price Index (1935–1939 = 100) Standard & Poor's	212.9	216.7	270.9
Failures (number) Dun and Bradstreet	13	10	7

National Economic Indicators

	Latest Month	Last Month	Year Ago
Industrial Production (1947–1949 = 100) F.R.B.	146	146	141
Consumer Prices (1947–1949 = 100) B.L.S.	118.7	118.2	114.6
Wholesale prices (1947–1949 = 100) B.L.S.	116.9	117.0	112.8
Population (millions) Census	170.3	169.4	167.5
Unemployment (thousands) Census	2.7	2.9	2.8
Employment (millions) Census	64.0	63.4	63.1
Personal Income (billion $) Commerce	337.6	336.6	318.6

Photo courtesy Burlington Decorative Fabrics, Burlington Industries, Inc.

New way to back a winner

Textile manufacturers have looked long and hard for a means of improving the performance of fabrics for upholstery, drapes, handbags and footwear. Many types of backing were tried, but most of these presented new problems—in reduced flexibility and resilience, high cost, objectionable odor, poor adhesion or lack of permanence.

Finally, one industry leader tried a coating based on PLIOLITE LATEX. Barely visible, this lightweight, odorless backing "muscles" fabrics in every direction. It helps them retain their shape, even after severe stretching—and reduces wrinkling. It also improves body and drape, with increased resistance to raveling, tearing or snagging. *And it's permanent!*

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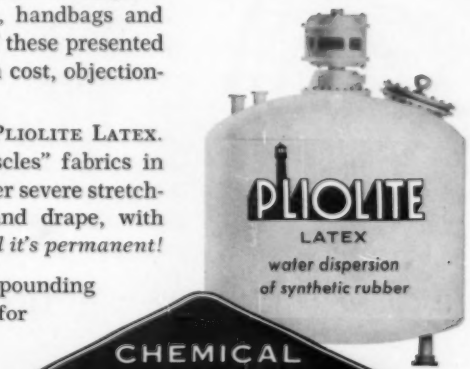

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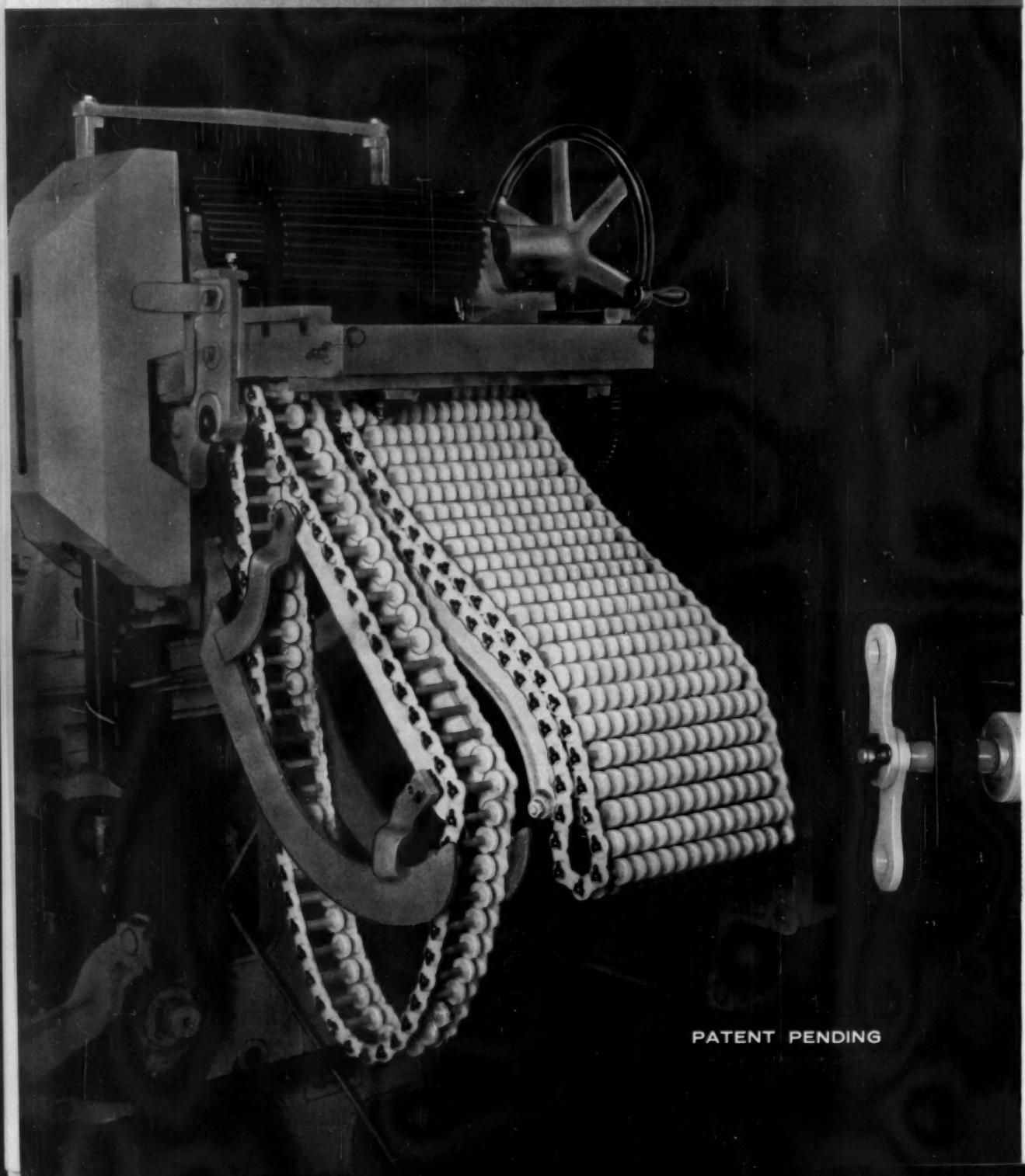

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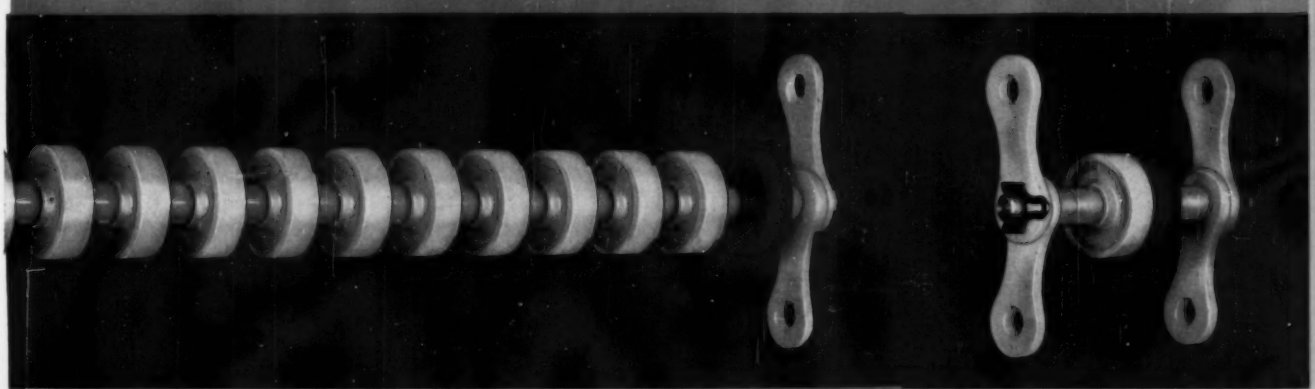

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Mill	A	A	B	C	C	D	D
Stock	Carded	Carded	Combed	Combed	Combed	Combed	Combed
Process	1st Process	2nd Process	1st Process	1st Process	2nd Process	1st Process	2nd Process
Model Versa-matic	4 Over 5	4 Over 5	3 Over 4	3 Over 4	3 Over 4	3 Over 4	3 Over 4
Sliver Fed	52.5 gr.	54 gr.	55 gr.	120 gr.	60 gr.	62 gr.	55 gr.
Ends Up	8	8	8	4	6	6	6
Speed	264 ft./min.	264 ft./min.	260 ft./min.	216 ft./min.	216 ft./min.	250 ft./min.	250 ft./min.
Sliver Delivered	54 gr.	56 gr.	55 gr.	60 gr.	60 gr.	55 gr.	55 gr.
Tester	Saco-Lowell	Saco-Lowell	Saco-Lowell	Brush	Brush		
Variation	18%—19%	18%—19%	10%—13%	14%—16%	11%—13%		
Efficiency	92%—95%	92%—95%				82%	82%
Deliveries	16	16	60	32	32	12	12
Deliveries/Operator	32	32	30	32	32	24	24
Can Size—Back	15" x 42"	15" x 42"	15" x 36"		14" x 36"		15" x 36"
Can Size—Front	15" x 42"	15" x 42"	15" x 36"	14" x 36"	14" x 36"	15" x 36"	15" x 36"
Yards/Can	3800 yds.	3875 yds.	3300 yds.	2850 yds.	2850 yds.	3500 yds.	3500 yds.
Pounds/Can	29.3 lbs.	31.0 lbs.	25.9 lbs.	24.4 lbs.	24.4 lbs.	27.5 lbs.	27.5 lbs.
Draft	7.77	7.71	8.03	8.03	6.00	6.75	6.00
Pounds/Man Hour	1250 lbs.	1270 lbs.	1105 lbs.	1070 lbs.	1070 lbs.	772 lbs.	772 lbs.

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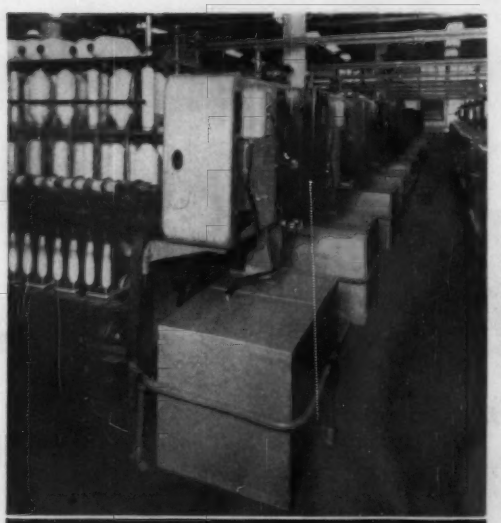

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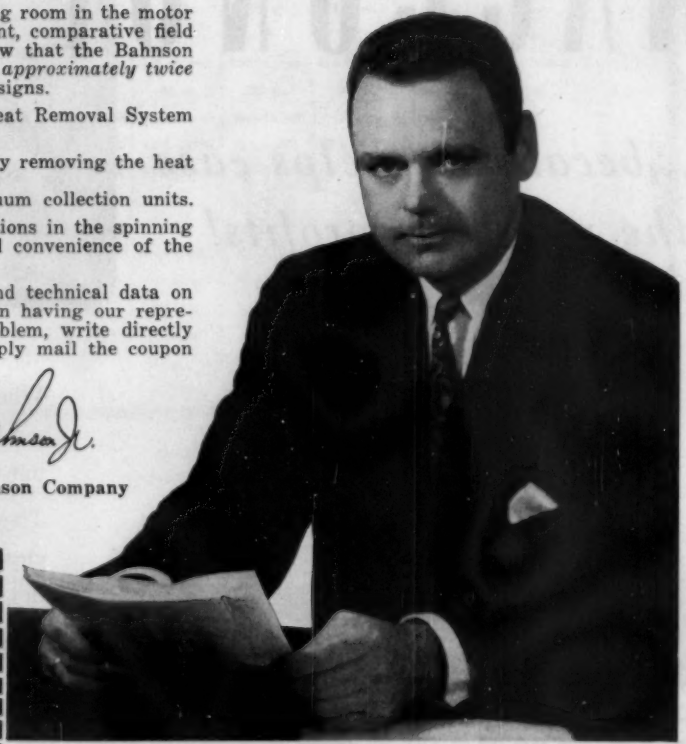
President
The Bahnson Company



Agnew H. Bahnson, Jr.
Dept. R
The Bahnson Company
Winston-Salem, N. C.

We are interested in ☐ data on the Central Heat Removal System ☐ having your representative call to discuss our heat problems.

Name_____
Company_____
Position_____
Address_____
City_____ Zone____ State_____

Bahnson COMPANY
WINSTON SALEM N C

AIR CONDITIONING
VACUUM COLLECTION
CLEANING
CREELS

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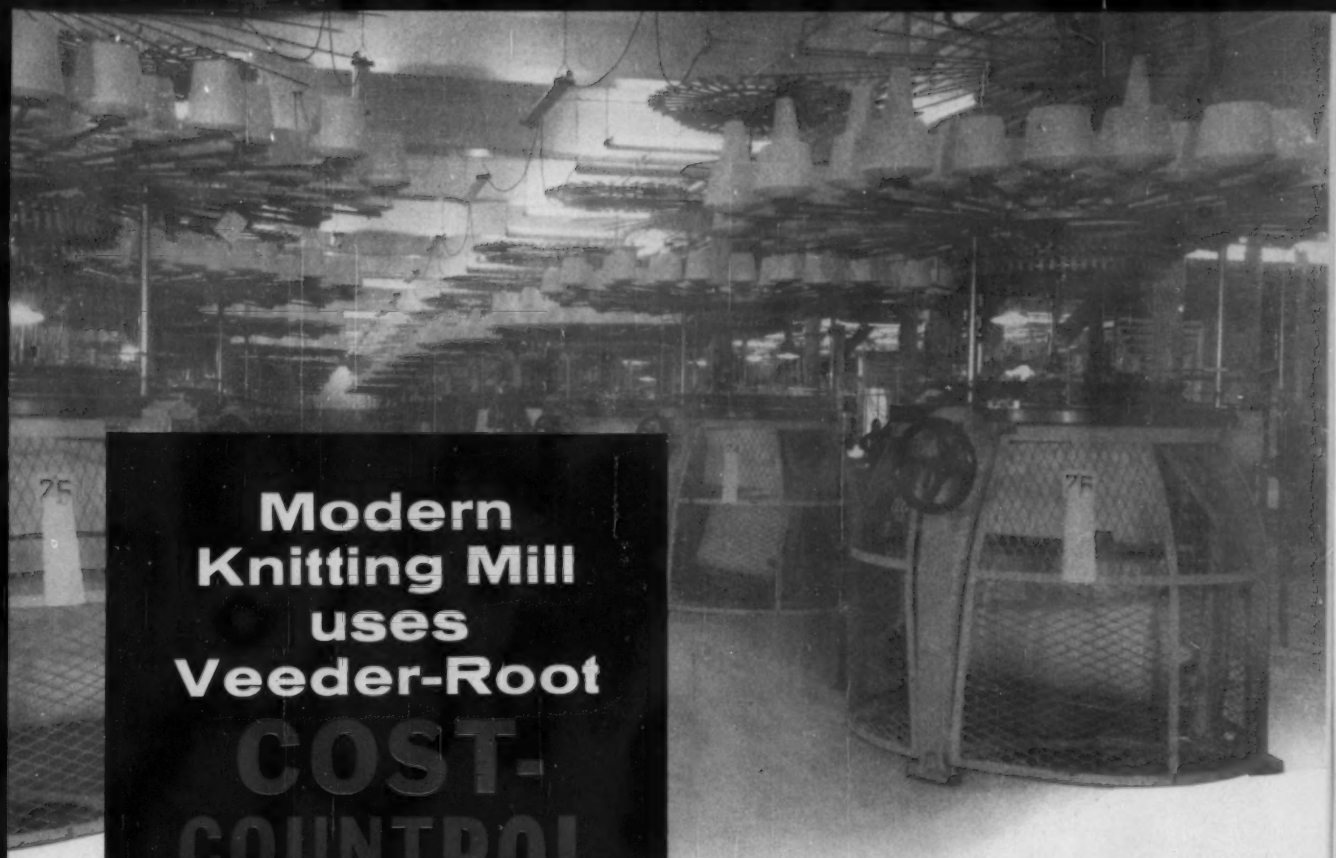
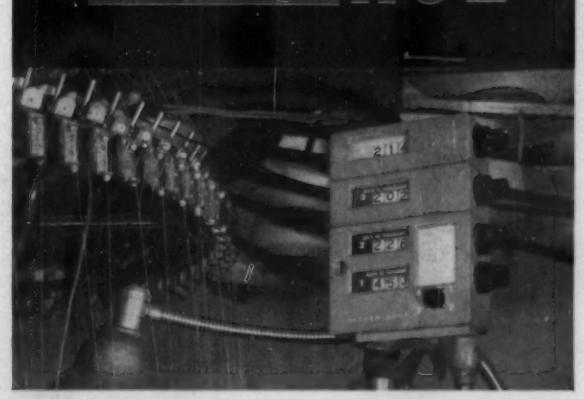
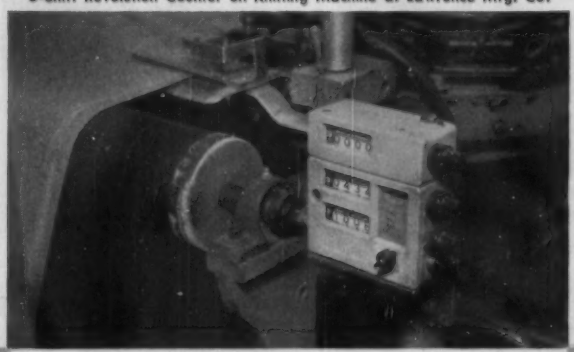


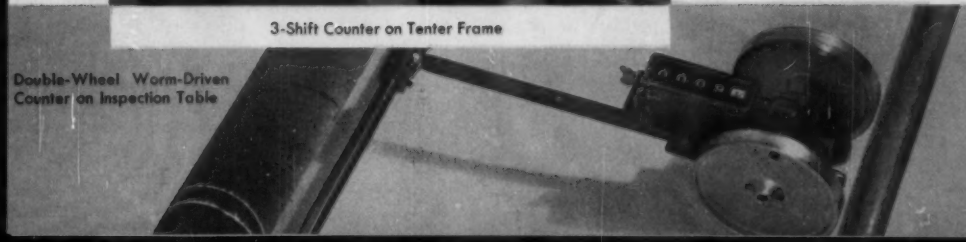
Modern Knitting Mill uses Veeder-Root COST-COUNTROL



3-Shift Revolution Counter on Knitting Machine at Lawrence Mfg. Co.



3-Shift Counter on Tenter Frame



Double-Wheel Worm-Driven Counter on Inspection Table

to Speed Production . . . Save Time . . . Eliminate Errors

You'll see 2-3-4 Convertible Revolution Counters on every knitting machine in the high-production mill of the Lawrence Manufacturing Co., Lowell, Mass., division of Ames Textile Corporation.

On the basis of "facts-in-figures" supplied by these Veeder-Root Counters, workers are paid "by the numbers" which simplifies paperwork, provides incentives, and shows workers their exact earning status at all times.

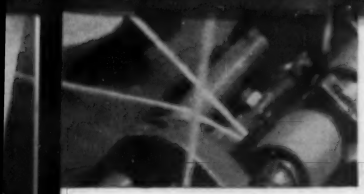
That's why Veeder-Root Cost-*Count*rol is an important factor in the production of Lawrence's top-quality knit goods. Find out the advantages *your* mill can gain by using the same simple basic system. A Veeder-Root engineer will be glad to show you how . . . any time you say. Write:

Veeder-Root

INCORPORATED

"The Name that Counts"

Hartford, Conn. • Chicago
Greenville, S. C.
New York • Los Angeles
San Francisco • Montreal
Offices and Agents in Principal Cities



Why new Dayco AP 664 Aprons improve yarn uniformity

. . . give trouble-free drafting

Smoother operation is the reason new Dayco AP 664 Aprons draft more uniform yarn, either natural or synthetic. Newly developed, highly flexible compounds eliminate drag around the nose bar, even on the latest super-draft systems.

Semi-gloss pink inner surface gives far lower coefficient of friction. This reduces chatter — indication of jerky, uneven motion around the nose bar. Non-stretch, pliable cord body assures maintenance of uniform apron tension for surer drafting control.

All through the long life of the new Dayco Apron, the compounds in the light blue drafting surface maintain just the right coefficient of friction for improved fiber alignment. Special ingredients prevent lint from coating the surface, therefore the drafting surface always remains the same.

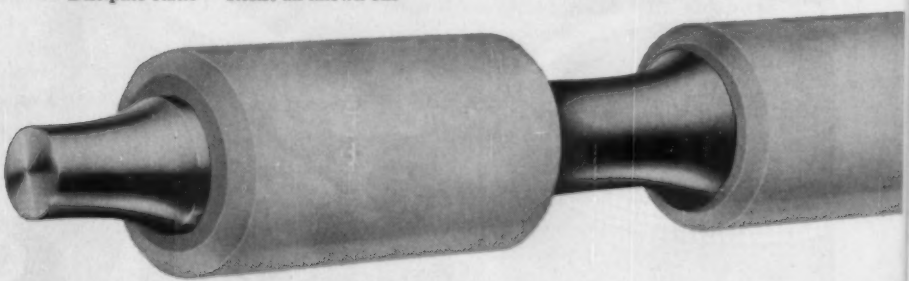
Compounded of materials which stubbornly resist chemicals or oils, Daycos instantly resume quality drafting after shutdowns. They are not affected by heat or humidity, nor will they take a permanent set. Flipped and broken aprons are a thing of the past. Dayco Aprons are available for both single and double apron systems.

Your Dayco Representative will be in soon to give you full information on how new Dayco AP 664 Aprons will improve the quality of every yarn. Or write The Dayton Rubber Company, Textile Division, 401 S. C. National Bank Bldg., Greenville, S. C.

For even greater drafting control—

New Lap-resistant Dayco EW 661 Cots offer these advantages:

- Stay dry and solid despite heat and humidity
- Dissipate static • Resist all known oils



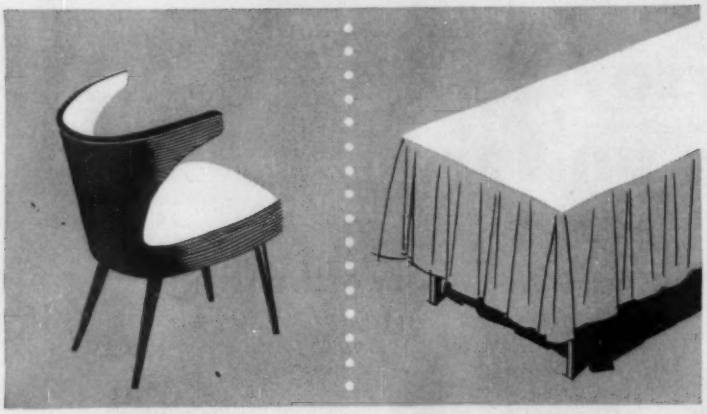
© D.R. 1957

Dayton Rubber

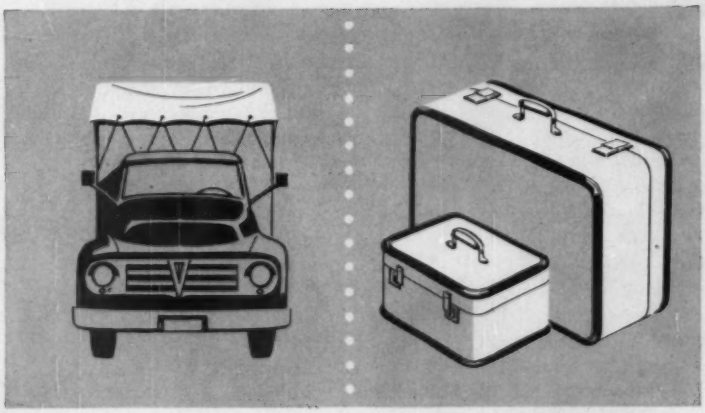
Dayco and Thorobred Textile Products for Better Spinning and Weaving

Another new development using

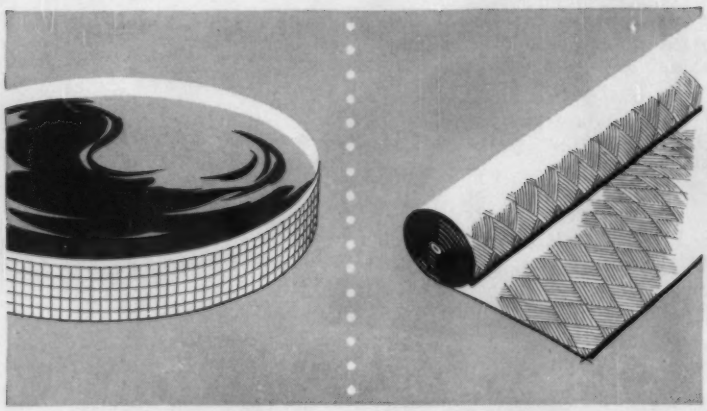
B.F.Goodrich Chemical *raw materials*



durable upholstery *stain-resistant tablecovers*



lightweight covers *tough fabric luggage*



fabric swimming pools *washable fabric wallcoverings*

GEON-BASED COATINGS

make light fabrics tough for new uses

TODAY, fabrics need not be heavyweights to stand really rugged use. With Geon-based coatings, light fabrics can be made extra-strong and remarkably resistant to abrasion, wear and tear.

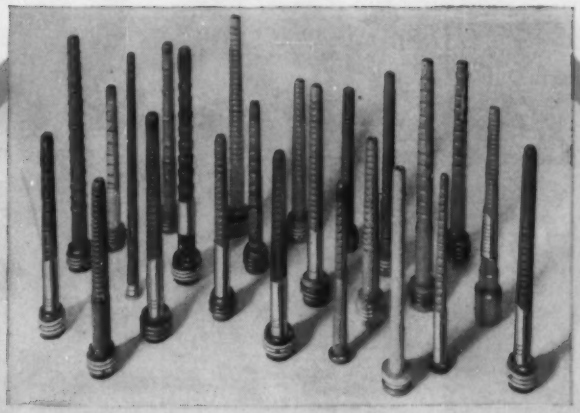
Other plus qualities fabrics get from Geon-based coatings include:

- **impermeability**
- **resistance to grease, oil and mildew**
- **softness and flexibility**
- **sunfast coloring in solids or print designs**
- **lasting pliability despite severe temperature and humidity changes**

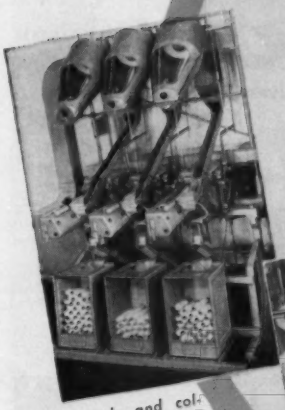
If you're looking for ways to make your present fabrics better or broaden their fields of use, investigate Geon coatings. For more information write Dept. FX-3, B.F.Goodrich Chemical Company, 3135 Euclid Ave., Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

B. F. Goodrich Chemical Company
a division of the B. F. Goodrich Company

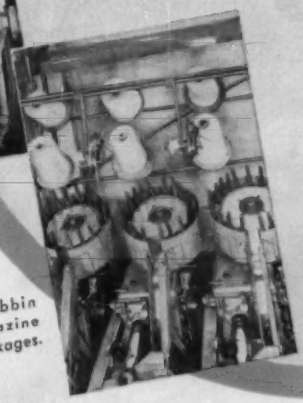
B.F.Goodrich **GEON polyvinyl materials • HYCAR American rubber and latex • GOOD-RITE chemicals and plasticizers • HARMON colors**



A few of the many types and sizes of filling bobbins that can be profitably run on the Fill-Master Winder.

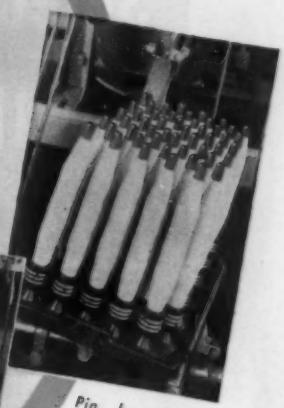


Exhaust hoods and collectors for mills having dust and fly in winding area.



Multi-cell empty bobbin magazine for magazine creeling or single packages.

Packing device for orderly, clean storage of filled bobbins.



Pin boarding arrangement for synthetic yarns.

Only the Whitin-Schweiter FILL-MASTER* Filling Winder

Gives you such Complete FLEXIBILITY and ADAPTABILITY

Whitin-Schweiter Fill-Master* Winder with Bobbin Loader

Flexible . . . . for fully automatic winding of cotton, wool, worsted, synthetics and blends.

Adaptable . . . to a broader range of mill requirements than any other winder thru its complete line of optional accessories (see illustrations)

These are only two of many outstanding advantages, including:

- Machine speeds up to 10,000 R. P. M.
- Speed of individual spindles adjustable
- Bobbins up to 10⅛" • Tail-less bobbins
- Variable layer locking traverse prevents sloughing
- Maintains uniform winding diameters, resulting in more yardage per bobbin

*Trade Mark

Whitin MACHINE WORKS

WHITINSVILLE, MASS.

CHARLOTTE, N. C. • GREENSBORO, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.

Manufactured by **WHITIN** *for sale in U. S. A. and Canada*

and by **SCHWEITER, LTD., Horgen (Zurich, Switzerland)** *for sale in other countries*

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In Selecting CONING OILS...

Do you know:

1. The Easy Method to Test Percentage of Oil Pick-up?

2. Which of the 6 methods of applying coning oils gives the most finely controllable amount of pick-up?

3. Which of the 9 Nopco Coning Oils is best for (a) Ban-Lon yarns; (b) Viscose knitting yarns; (c) Low twist multifilament yarns?

New NOPCO Report gives answers to these and many other questions you should know

This booklet represents the distilled experience of Nopco's technical specialists over many years of formulating these lubricants and adapting them to the ever-changing needs of America's leading textile mills. It includes the newest lubricants balanced with antistatic control and built-in detergency for optimum effectiveness in producing cleanest finished fabrics. Send for your free copy today. Nopco Chemical Company, Harrison, New Jersey.

NOPCO

PLANTS: Harrison, N. J.
Cedartown, Ga. • Richmond, Calif.
London, Canada

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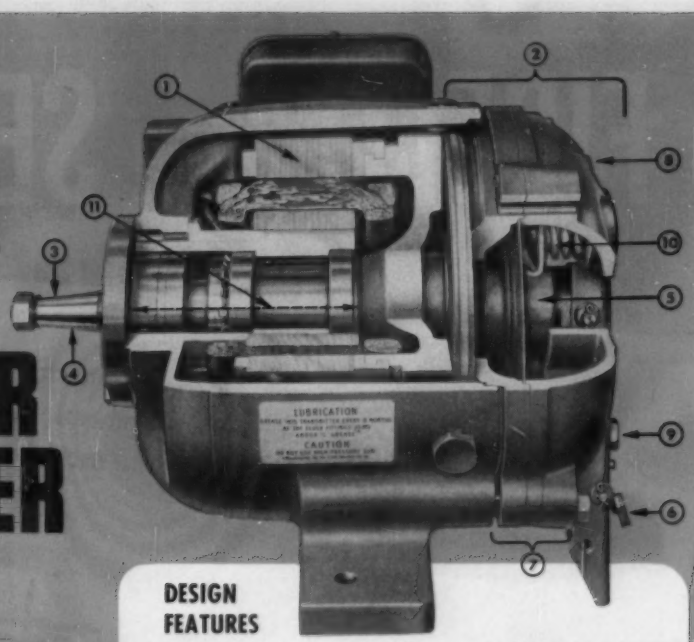
THE DEPENDABLE DIEHL

"BA" POWER TRANSMITTER

For Draper Looms

Exclusive new design features mean . . . *consistent* quality production . . . *peak* operating efficiency . . . minimum maintenance, labor and costs!

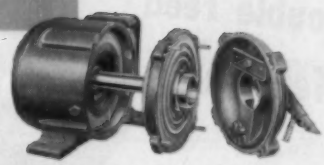


DESIGN FEATURES

High inertia inverted motor provides "stored energy" for smooth, fast starts and positive picking (maximum inertia with minimum size) . . . prevents regeneration.

STREAMLINED FRAME
Easy to clean. Roomy terminal box.

KINETIC BRAKING ACTION
(See Feature 6)



CLUTCH-ACTUATING BEARING—A strikingly new and improved method of mounting. (See Feature 5)

CLUTCH-BRAKE ASSEMBLY—Improved, simplified. Readily removable as a unit. (See Feature 2)

The original and only loom power transmitter . . . plus many outstanding design and construction features never before incorporated in a loom drive!

Over 40,000 Diehl Power Transmitters have been in continuous operation on DRAPER LOOMS—*most of them more than six years!* The "BA" Power Transmitter is even *more* compact, *more* streamlined, *more* efficient and *more* easily installed and serviced than its famous predecessor.

It's an inverted-type high inertia motor combined with a fast, positive clutch-brake mechanism. Note the exclusive design features—the clutch-actuating bearing mounting . . . the kinetic braking action . . . the unitized clutch-brake assembly. These important advancements mean increased production . . . improved cloth quality . . . lowered operating costs . . . fewer shutdowns. *Write, wire or phone today for full information.*

plus these outstanding Features

***2. CLUTCH-BRAKE ASSEMBLY**—Improved and simplified for positive action and ease of adjustment. Removes readily as unit for maintenance, without disconnecting motor from loom frame.

3. PINION—Free accessibility for installation and maintenance.

4. SHAFT—Large diameter, alloy steel, heat treated—assures long life, eliminates need for outboard bearing.

***5. CLUTCH-ACTUATING BEARING**—New diaphragm mounting for frictionless clutch action, positive radial rigidity of bearing . . . eliminates fretting corrosion . . . means full self-alignment of bearing for maximum life.

***6. KINETIC BRAKING ACTION**—For rapid, accurate stops. Particularly desirable for center fork detection looms.

7. CLUTCH AND BRAKE ADJUSTMENT—Simple and convenient. Provides visible check on brake alignment.

***8. CLUTCH-SETTING INDICATOR**—Built integral with unit for instantaneous external checking of clutch setting.

9. SAFETY LATCH—Built integral with unit. Prevents accidental engagement of clutch.

10. CLUTCH-LOADING ASSEMBLY—Internally located, hence tamper-proof.

11. SHAFT-END BEARINGS—Arrangement simplified and improved. Two ball bearings and an extra large roller bearing assure maximum life.

** Exclusive feature—patent protected.*

Diehl

DIEHL MANUFACTURING COMPANY

Electrical Division of THE SINGER MANUFACTURING COMPANY

Finderne Plant, SOMERVILLE, NEW JERSEY

BALTIMORE • CHAMBLEE, GA. • CHARLOTTE, N. C. • CHICAGO • CINCINNATI • DETROIT • MILWAUKEE • NEEDHAM, MASS • NEW YORK • PHILADELPHIA

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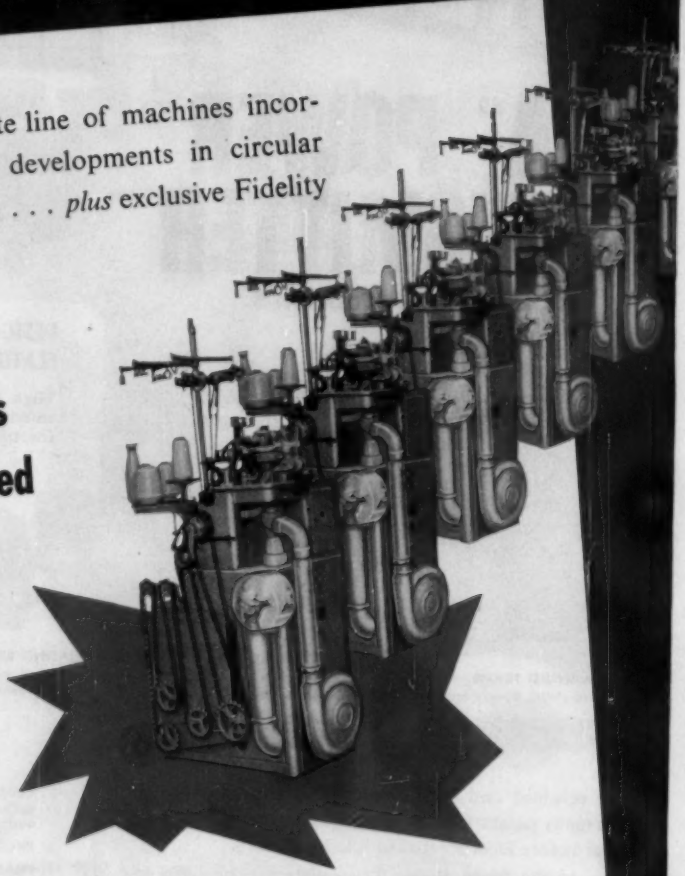
FIDELITY for SEAMLESS

Only Fidelity offers a complete line of machines incorporating *all* the outstanding developments in circular knit hosiery equipment design . . . *plus* exclusive Fidelity electronic control!



- **400 or 474 Needles**
- **Single or Double Feed**
- **Automatic Tension Device**
- **Plain, Mesh or S-T-R-E-T-C-H**
- **Individual Motor Drive with . . .**
- **Electronic Push Button Control**

You select the performance features *you* want . . . when you select a Fidelity. See the *complete* Fidelity line in operation at our showrooms . . . or write for stocking samples today.

Designers and Builders of Intricate, Automatic Precision Machines

SINCE 1911

FIDELITY MACHINE COMPANY, INC.

3908-18 FRANKFORD AVENUE, PHILADELPHIA 24, PA.

EXPORT DEPT.: 11 BROADWAY, NEW YORK 4, N. Y.

SOUTHERN REPRESENTATIVE: C. S. BRANNOCK, P. O. BOX 763, MT. AIRY, NORTH CAROLINA

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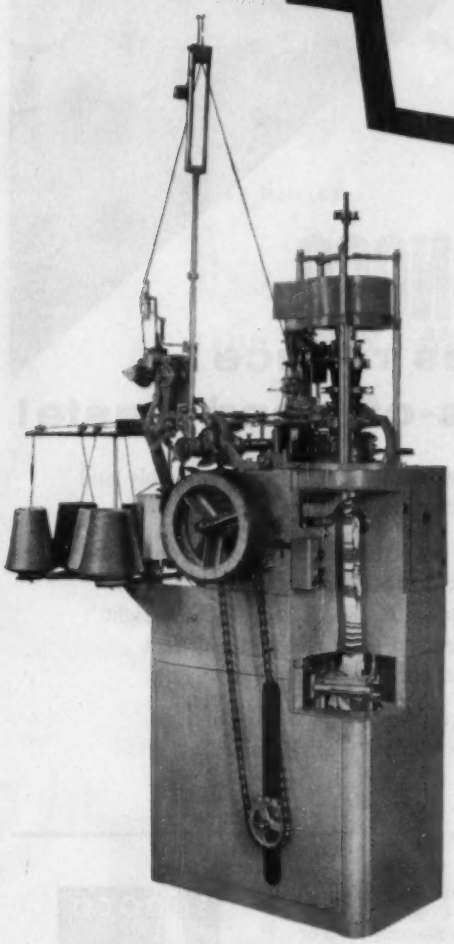
HAND WORK

HOLDS DOWN YOUR PROFITS



ELIMINATE HAND TRANSFER

WITH THE NEW FIDELITY

Automatic True Rib

*Check these outstanding "Profit Features" of the A.T.R.**

A utomatic clipping for selvage
U ndersole Looping for Added Comfort—Added Sales Appeal
T rue rib top made with dial latch needles
O nly 5 Drum Tricks for up to 10 Colors mean faster Pattern Changes
M inimum Floor Space, yet contains rotating take-up
A utomatic Plating and Splicing Attachment Eliminates Trimming
T hy-Mo-Trol Electronic Drive by General Electric
I deally suited for use with Stretch Yarn
C olor possibilities Unlimited with use of New Fidelity 10 Color Yarn Selector and Knot Tyer
T ransfer of Superior Quality, Completely Automatic
R ubber Lay-In and Picot Optional

* all sizes from 2¾" in Plain and 2x2 Rib

No Automatic Transfer Knitter available today offers the same degree of design and construction simplicity PLUS production versatility and efficiency! You can actually produce superior quality ribbed hose for teens and tots . . . at faster production rates . . . at ultimately lower costs.

See the new Fidelity "A-T-R" in operation at our showrooms . . . or write for samples and details today!

FOR GREATER PROFITS . . . GO AUTOMATIC . . . GO FIDELITY "A-T-R"

Designers and Builders of Intricate, Automatic Precision Machines

SINCE 1911

FIDELITY MACHINE COMPANY, INC.

3908-18 FRANKFORD AVENUE, PHILADELPHIA 24, PA.

EXPORT DEPT.: 11 BROADWAY, NEW YORK 4, N.Y.

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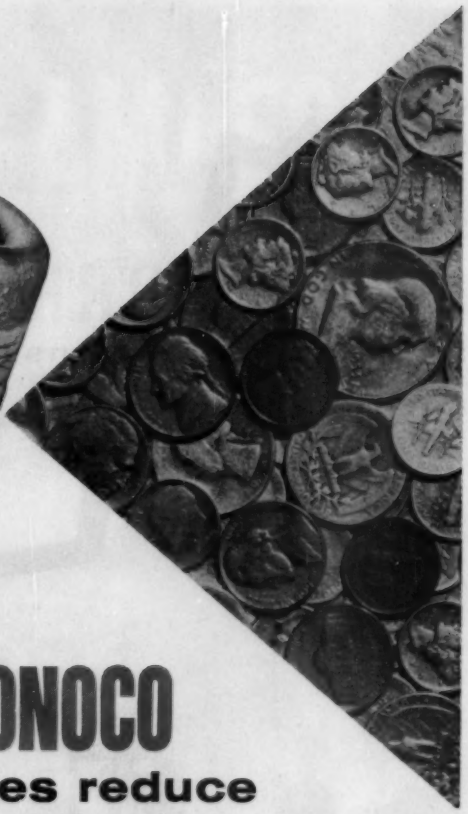
SAVE
THE PART
OF YOUR
PROFIT
THAT LIES
HERE!



SONOCO
cones reduce press-offs and waste!

SONOCO precision-made cones deliver smoothly and evenly down through the primary wind.

For over 57 years, Sonoco research has pioneered in the creation of cone surfaces and tapers to meet every new yarn development in the textile industry. The right combination of surface and taper will give a perfect foundation for a sound package for every type yarn.

Get the most efficiency in winding, packaging and delivery of yarns. Use Sonoco precision-made, job-engineered cones.

Typical of SONOCO product improvement is this 3°30′ Velvet Surface Cone. The velvet surface prevents slippage of filament yarns or fine count cotton yarns in primary winding. This package feeds off smoothly and completely without sloughing, hanging or breaking. The Velvet Surface is available on all SONOCO cones.

sonoco
SERVES THE WORLD
PAPER CARRIERS
REG. U.S. PAT. OFF.

SONOCO PRODUCTS COMPANY

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MYSTIC, CONN. • AKRON, IND. • LOWELL, MASS. • PHILLIPSBURG, N. J.
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GRANBY, QUEBEC • BRANTFORD, ONT. • MEXICO, D. F.

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FRANZ MÜLLER

More than 100 years ago

Franz Müller founded the company known today as Franz Müller, Maschinenfabrik, M.Gladbach. He eventually specialized in building textile machines and was the first one to construct a napper of rigid, horizontal design. Constant experiments proved, however, that adopting the planetary principle for the napper rolls produced much better results, and Franz Müller built the first fourteen-roller planetary napper - the proto-type of all similar nappers to follow.

In those days the first planetary napper startled the textile industry. Today the Franz Müller TRI-Napper has conquered the world's largest textile markets.

The FRANZ MÜLLER TRI-Napper offers you -

Higher production,
Better napping quality,
Easy operation,
Infinitely variable cloth speed,
Infinitely variable pile and counterpile action,
Synchronized gears,
V-belt drive for napper rolls,
Single and tandem operation.

NORTHERN U. S. AND CANADA:
TEXTILE MACHINERY IMPORT CO.
277 NORTH AVENUE,
NEW ROCHELLE, N. Y.

SOUTHERN U. S.:
PARROTT & BALLENTINE,
510 S. CAROLINA
NATIONAL BANK BUILDING,
GREENVILLE, S. C.

FRANZ MÜLLER · MASCHINENFABRIK · M.GLADBACH (GERMANY)

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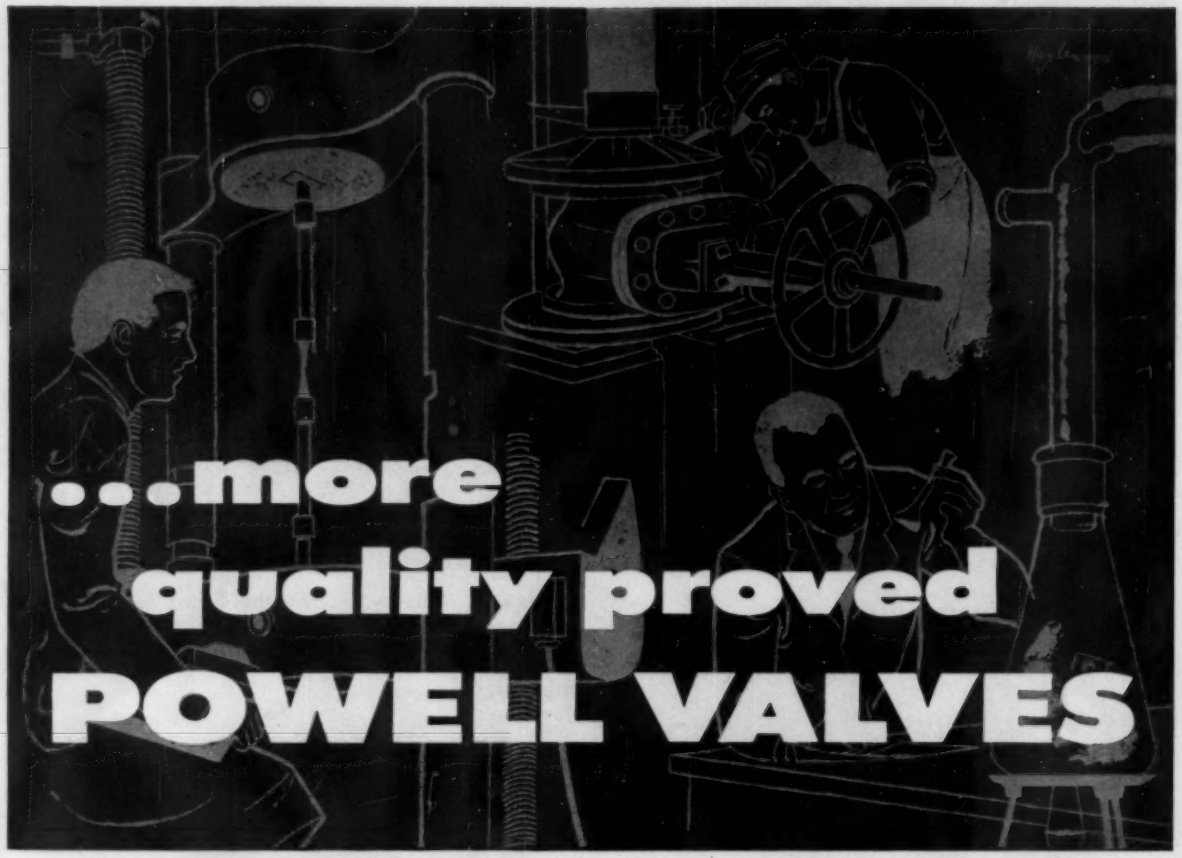


FIG. 2309—Flush Bottom Tank Valve for 150 Pounds W.P.

FIG. 2491—Stainless Steel O.S.& Y. Gate Valve for 150 Pounds W.P.

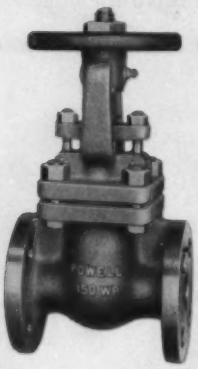
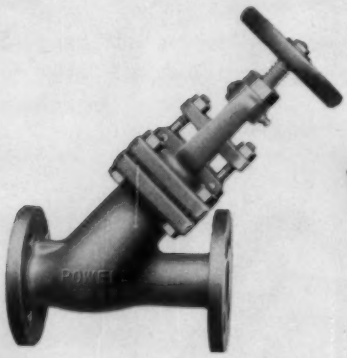
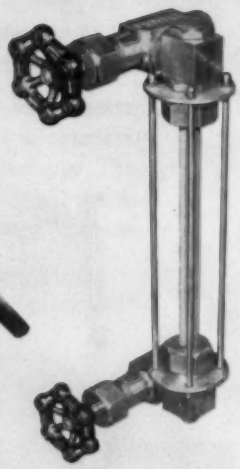


FIG. 1886—Stainless Steel Liquid Level Gauge for 350 Pounds W.W.P. Offset pattern.

FIG. 2107—Stainless Steel "Y" Valve for 150 Pounds W.P.





for dependable flow control

Consult your Powell Valve distributor for full facts about quality proved bronze, iron, steel and corrosion-resistant valves. For every flow control problem—there is a Powell Valve to solve it.

THE WM. POWELL COMPANY, CINCINNATI 22, OHIO . . . 111th YEAR

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Warner & Swasey Pin Drafters® boost production 30%–in same floor space

at DELAWARE MILLS, INC.

"ARE we getting maximum floor space utilization from our present drawing equipment?", asked W. H. Michael, Manager of Delaware Mills, Inc., New Castle, Delaware. As the result of a detailed subsequent cost analysis, two sets of pin-controlled drawing were replaced with new high-speed Warner & Swasey Pin Drafter Intersecting Draw Frames.

Delaware Mills found that pound-for-pound they now get 30% more from the Warner & Swaseys in the same amount of floor space. Quality of their hi-bulk yarns are maintained at Delaware's same high level—and machine maintenance has been drastically reduced!

® Reg. U. S. Pat. Off.

Faller bar repinning previously cut deep into profits. Delaware now estimates that during the past year less than 50 Warner & Swasey Plastic-Bonded Faller Bars have been repinned on their six new high-speed Pin Drafters—at a cost of approximately 6 cents a day per machine! Because it's now so negligible, faller bar cost records have been discontinued.

If your plant expansion program is hampered by limited floor space, or if costly maintenance is cutting into profits, it will definitely pay you to call in the nearest Warner & Swasey Field Engineer.

SALES OFFICES

Main Office and Factory, 5701 Carnegie Avenue, Cleveland 3, Ohio
61 Rivulet St., North Uxbridge, Mass.
121 11th Street, N. E., Atlanta 3, Ga.
Suburban Square Bldg., Ardmore (Philadelphia), Pa.
624 Pecan Avenue, Charlotte 5, N. C.

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS . . . WITH A WARNER & SWASEY

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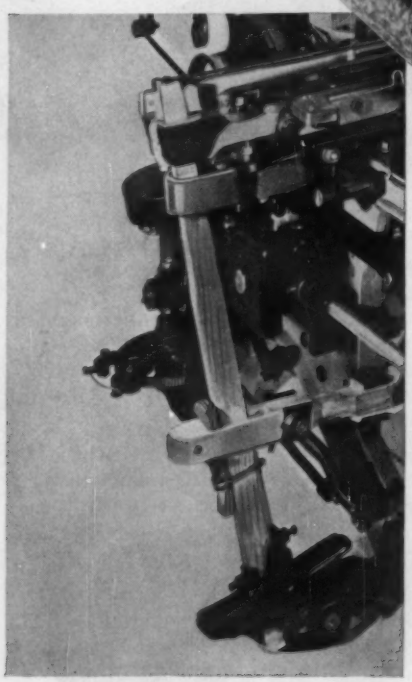
a superior HAIRON strap

Straight
Curved
BiCut



Tannate® HAIRON

A *superior check strap* means—

1. Lower strap cost per loom hour
2. Less loom downtime for strap breakage or adjustments
3. Improved shuttle performance
4. Increased production capacity

Made from Tannate Special Leather, Tannate Hairon Checks guarantee their superiority. They're strong and resilient with better surface friction. No matter how you measure it, Tannate Checks assure improved loom operation.

2100 W. 11th St., Wilmington 99, Del.

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RHOADS
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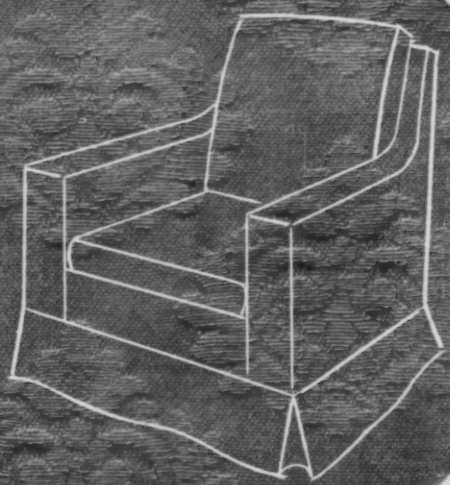
88 ways Outstanding!

NATIONAL CARBANTHRENE® GREY BFN PASTE



You may never see a better "report card" than our Technical Bulletin No. 443 on this outstanding vat color. In a total of 91 fastness and working properties listed, National Carbanthrene Grey BFN Paste *earns top or next-to-top ratings in all but three!*

Light fastness is maximum in heavy shades and excellent-to-maximum in medium shades. Wet fastness is excellent in all tests, including chlorine and washing.

National Carbanthrene Grey BFN Paste is particularly recommended for cotton and rayon fabrics that are to be rubberized or after-treated with resins. It can be applied in all types of dyeing equipment.

For your copy of Technical Bulletin 443 and a working sample of this unusual National Vat Dye, get in touch with the National Aniline office nearest you.

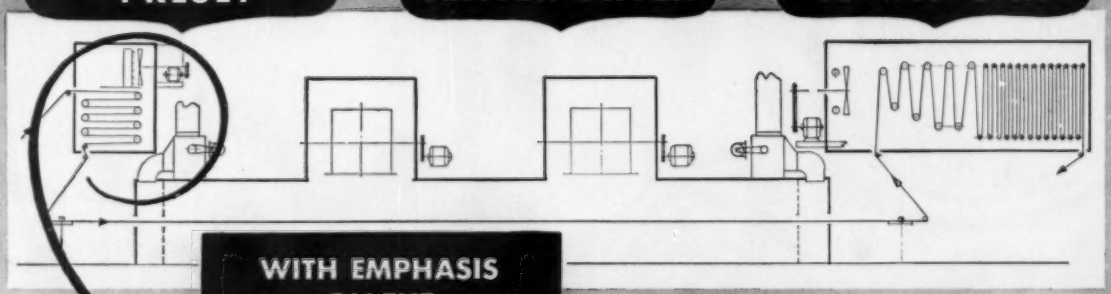
NATIONAL ANILINE DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET, NEW YORK 6, N. Y.

Akron Atlanta Boston Charlotte Chattanooga Chicago
Columbus, Ga. Greensboro Los Angeles New Orleans Philadelphia
Portland, Ore. Providence Richmond San Francisco Toronto

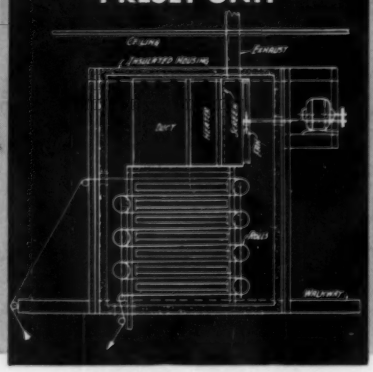
Member of the Vat Dye Institute

an A&G Resin Finishing Range

A & G PRESET + **A & G TENTER DRYER** + **A & G ROLL TYPE CURING UNIT**



WITH EMPHASIS ON THE PRESET UNIT



1 Eliminate tenter clip marks

2 Keep tenter clips clean

3 Prevent resin migration

THE RESIN PRESET—Developed by Andrews and Goodrich to increase production, to save on maintenance and down time, and to produce higher quality resin treated goods.

A major problem which instigated the design and development of the Andrews and Goodrich Resin Preset was that of resin "pick-off" on the tenter chain clips during the initial stages of drying in the frame. The resin would then cure on the clips causing faulty operation. Subsequent cleaning of the clips was a long and tedious operation.

The Andrews and Goodrich Preset Design acknowledges that resin will pick off but isolates this dilemma to an easily maintained roll type unit. Additional features of this machine are that it eliminates clip marks, prevents resin migration, boosts production both directly and indirectly, has low initial cost and low running costs.

If you at present have a resin finishing range but do not have an Andrews and Goodrich Preset unit, you should investigate this dryer that is designed for this specific job.

You may be contemplating the installation of a resin finishing range. Why not have an Andrews and Goodrich engineer discuss the proper design and sizing of drying and curing machinery with you at your convenience?

Andrews and Goodrich has specialized in textile finishing machinery, exclusively, for the last 37 years.

THE **ROSS** GROUP OF COMPLEMENTING SERVICES

J. O. ROSS ENGINEERING CORPORATION
New York
ROSS ENGINEERING OF CANADA LIMITED
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ROSS MIDWEST FULTON CORPORATION
Dayton
ANDREWS AND GOODRICH DIVISION
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CARRIER-ROSS ENGINEERING COMPANY, LTD.
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JOHN WALDRON CORPORATION
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Tuffer TRADE MARK Card Clothing

Hundreds of mills... year after year... get the utmost in production with **TUFFER** *on their cards*

Tuffer always meets the requirements of those who want the best

Manufacturers of Card Clothing since 1866

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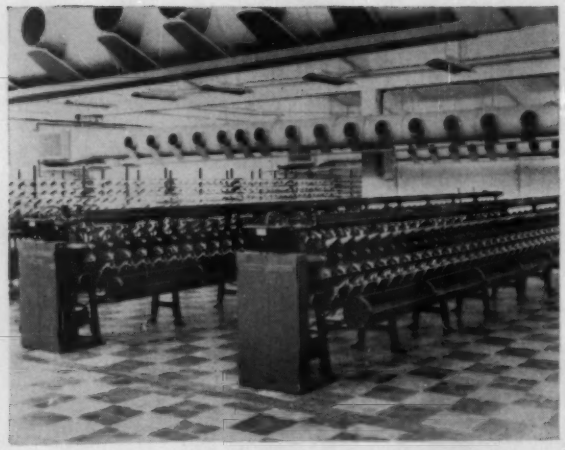
TUFFER PRODUCTS Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing and Brushes • Top Flats re-covered and extra sets loaned at all Plants • Lickerins rewired at Southern Plants • Hand Stripping Cards

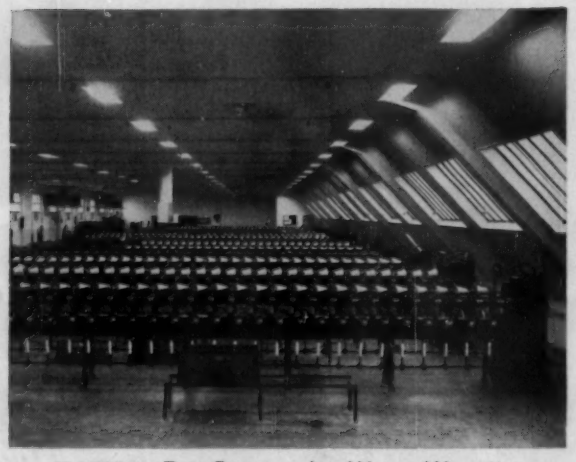
Leesona ROTO-CONER®
—the winding way around the world



URUGUAY — Roto-Coners set up to wind onto paper cones. Machines are equipped with round bobbin boxes.

U. S. A. — Roto-Coners winding parallel tubes on one side, cones on the other.

GREAT BRITAIN — Roto-Coners winding open-wind knitting cones.



FRANCE — Roto-Coners coning 100s — 120s cotton yarn.

Every textile manufacturing country in the world uses Leesona Roto-Coners in quantity.

These quiet, trouble-free drum winders produce every type of open-wind package. They wind onto paper tubes and cones for shipment or knitting . . . onto cork-covered, wood cones for warper creels . . . onto perforated tubes and springs for dyeing . . . onto wood tubes and cones for twisting.

Around the world they wind cottons . . . spun synthetic staples . . . wools . . . worsteds . . . linens . . . blends.

The exclusive *Rotary Traverse* on these machines eliminates all moving parts connected with reciprocating guides — permits high speed, reduces maintenance, and assures uniform packages and top quality yarn.

For facts and figures on why these versatile, dependable machines are popular around the world, write for the illustrated Leesona Roto-Coner booklet.

23.6.14

UNIVERSAL WINDING COMPANY

P. O. BOX 1605, PROVIDENCE 1, R. I.

Sales Offices: Boston • Philadelphia • Utica • Charlotte • Atlanta • Los Angeles
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Agents in every principal textile center throughout the world.

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IMPORTANT ANNOUNCEMENT!

from the Man of Many Talents

FLUFdyed
TRADE MARK

A New, Exclusive Method of Dyeing Hi-Bulk Orlon* Yarns

Franklin's FLUFDYED procedure overcomes the objections found with previous methods of yarn dyeing Hi-Bulk Orlon.

Because the yarn is fully bulked when dyed, the following advantages are realized:

KNIT TO SIZE — Garments can be knitted to size, thus eliminating size variations which take place when dyeing occurs after knitting.

MINIMIZED FINISHING — The necessity of additional tumbling after knitting is eliminated and only steaming is required in order to achieve a soft hand.

PATTERNS AND STRIPES — The field is open for multi-colored style creations without the necessity of long deliveries from spinner to knitter.

Ask "the man of many talents" — your Franklin Process Representative — about FLUFDYED Hi-Bulk Orlon yarns. Tell him your requirements. He'll be glad to make recommendations.

*Dupont's Acrylic Fibre

Franklin Process

Yarn Merchants & Largest Package Dyers in the World
Providence • Philadelphia • Greenville
Chattanooga • Fingerville, S. C.
New York office — 280 Madison Avenue

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Stainless Steel Keeps

COLOR-CONTAMINATION WORRIES disappear when you use dyeing and bleaching equipment fabricated from Republic ENDURO® Stainless Steel. It's the metal that assures trueness of color—and purity of bleached whites, too. It's the metal that's safe for the most delicate colors and fabrics.

THERE IS NO DANGER OF OFF-COLORS caused by metallic oxides. ENDURO Stainless Steel stubbornly resists rust and corrosion. It is non-contaminating. ENDURO does not react with or absorb dye-bath chemicals or peroxide bleaches. Considerably less of these chemicals is required to maintain necessary concentrations.

KEEPS MAINTENANCE COST DOWN. This yarn-dyeing machine, one of an installation of 19, is fabricated from Republic ENDURO Stainless Steel. It has been in almost continuous use for over 10 years. In that time it has been subjected to constant contact with dyeing solutions—to repeated flushings and washings. There has been no deterioration, no replacement. The owner of this equipment reports no maintenance problem whatsoever.

REPUBLIC

REPUBLIC STEEL

World's Widest Range of Standard Steels

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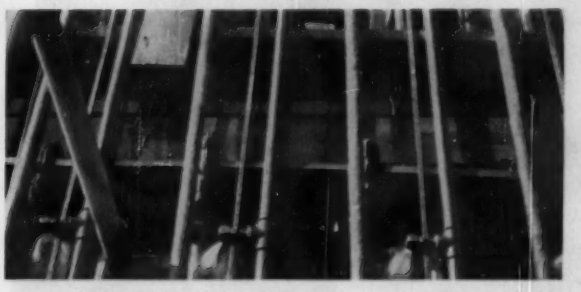
Colors Bright and True

QUICK COLOR CHANGES and economical processing of small runs is made possible by ENDURO's easy cleanability. A water rinse quickly restores its smooth, hard surface to sparkling cleanliness. There is no need for expensive boil-outs—no need for using caustic, reducing, or oxidizing agents to remove dyes.

WANT MORE FACTS? Your supplier will give you additional reasons for using equipment fabricated from Republic ENDURO Stainless Steel—the metal that keeps colors bright and true, that cuts costs, that lasts and lasts. Or, if you would like to discuss your problem with a metallurgist, just mail the coupon. There's no obligation.



KEEP PROCESS AND WASTE LINE REPLACEMENT COSTS DOWN by installing Republic SRK corrosion-resistant Plastic Pipe. Within its temperature and pressure limitations it is ideal for many applications in textile and other processing industries. It is highly resistant to most corrosive liquids and gases. Being extremely tough, it will absorb terrific punishment without brecking or shattering. Republic SRK is lightweight, easy to handle. Lengths are joined by simple solvent-welded sleeve-type fittings. Send coupon for details.

KEEP HANDLING COSTS DOWN and simplify storing with materials handling equipment engineered for the job. The special units shown above were designed and fabricated by Republic's Pressed Steel Division for a dye house. They have eliminated the costly problem of handling single bolts of cloth. Now, numerous bolts can be handled, transported and stored in each unit. Four-way entry permits easy maneuvering in restricted spaces. Offset channels allow tiering, save space. Open-end construction provides easy accessibility. Write for details.

STEEL

and Steel Products

REPUBLIC STEEL CORPORATION
DEPT. C-3621
3190 EAST 45TH STREET, CLEVELAND 27, OHIO

☐ Have a metallurgist call.
Send more information on:
☐ ENDURO Stainless Steel ☐ Republic SRK Plastic Pipe
☐ Materials Handling Equipment

Name_____ Title_____
Company_____
Address_____
City_____ Zone____ State_____

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another

AVISCO® FIBER SERVICE

BEAMED YARN of rayon or acetate, with beam racks to ease its handling and storage even more, has important advantages for all but the smallest mill.

You save beaming operation costs.

Large quantities of yarn moved easily with a fork truck; storage is simplified.

Dye levelness is improved in finished fabric.

Major yarn damage hazards are eliminated.

Avisco beamed yarn is practically knotless.

We will gladly send, upon request, a new illustrated booklet about the benefits and specifications of beams and beam racks . . . one of many services inaugurated for American Viscose customers.

Counsel is as near as your phone, at LA 4-7200. **AMERICAN VISCOSE CORP.**, 350 Fifth Ave., New York 1, N.Y.

SPECIFY "ORANGE LINE" for better loom performance

Graton & Knight textile leathers are the result of over a century of practical mill experience. For every textile machine requiring leather accessories, G & K has pioneered and proven a better tannage . . . a better product.

G & K "Orange Line" loom leathers, tapes and Grakorub aprons are used in leading textile mills everywhere.

Ask your local distributor to tell you about G & K performance, or write:

GRATON AND KNIGHT®

GRATON & KNIGHT *Company* INC.

WORCESTER, MASSACHUSETTS

For more data, write this page number on Reader-Service card. →

Excessive eyebrowing?
Too many lap-ups?
Yarn irregularities?

The broad line of Accotex® roll covers will help you solve these problems

When you have a problem involving such things as front-roll laps, excessive eyebrowing, or yarn irregularities, it's a good idea to talk things over with your Armstrong representative. His practical training and experience can be a helpful source of ideas and information.

Whatever the difficulty, chances are he can recommend a material from the broad line of Armstrong roll coverings that will meet your specific needs.

For example, where lapping is encountered, the Accotex J-490 Cot is first choice in hundreds of mills. The J-490 compound contains a special electrolyte that actually tends to repel loose fibers.

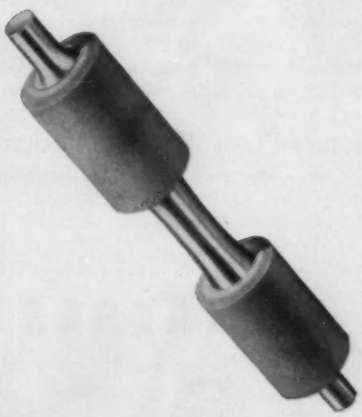
Where high static conditions aggravate lapping, one of the new Armstrong antistatic materials will probably offer a solution. These new materials are made especially to combat high static on modern high-draft frames where nonmetallic cap bars are used and where other metal-to-metal contacts have been eliminated.

There has been a trend toward softer cots as a means of reducing irregularities on certain types of yarn. The softer materials offer better yarn control. Armstrong can supply the soft cots where their use is indicated.

Where eyebrowing is a problem, the Accotex NC-762 Cot—one of the new anti-static materials—will control it. Many mills report substantial reductions in the amount of waste where NC-762 is used. And the waste that does form is packed well back under the clearers.

No matter what type of fiber or blend you're spinning . . . no matter what equipment you're using, there's an Accotex Roll Covering made to help you turn out strong, uniform yarn. Your Armstrong man can help you choose the right roll cover for best performance in your spinning room. Call him today. All Armstrong textile products are available for export.

For more information about Accotex Roll Coverings or other Armstrong textile items, write for the booklet, "Armstrong Textile Products." It gives suggestions on selection, installation, and maintenance of Armstrong spinning room and weave room supplies. Address Armstrong Cork Company, 6505 Dauphin St., Lancaster, Pa.



Armstrong ACCOTEX COTS

. . . used wherever performance counts

HOW
CONDOR V-BELTS
give you "More Use per Dollar"
Structurally Balanced for Smooth Running
Straight Sidewalls, More Grip, Longer Life

These Smoother Running V-Belts Lower Your Operating Costs

Condor V-Belt engineering makes the difference. The strength member is micro-positioned in heat dissipating rubber for a smoother running, cooler running drive . . . for longer life with the heaviest power loads. Condor V-Belt sidewalls are made *straight* to put positive pressure on the sheave grooves for more grip . . . less slip. Straight sidewalls help support the super-strength synthetic cords of the belt in a straight line so that *all* cords pull equally . . . deliver their maximum share of power. Controlled length is accomplished through prestretching during manufacture to remove inelastic stretch that might otherwise occur on the job.

NOW . . . Moisture-Proof Vacuum Packaging

R/M's exclusive new vacuum sealed moisture-proof packaging assures positive V-belt length control for users of longer lengths in C, D & E cross sections! Belts are measured at the factory under controlled humidity and identified for precise matching. They are then vacuum-sealed in moisture-proof aluminum lined bags. The result—no shrinkage or elongation in storage . . . sustained uniformity on the drive! Length is certified from the factory to the field.

R/M Poly-V* Drive

A New Belt Drive Concept For Heavy-Duty Power Transmission. Eliminates V-belt matching problems. Delivers up to 50% more power in the same space as regular V-belts or equal power in less space.

Write for copy of Poly-V Drive Bulletin #6638.

(*Poly-V is a registered Raybestos-Manhattan trademark)

RM-606

MANHATTAN RUBBER DIVISION—PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.

Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Brake Linings • Brake Blocks • Clutch Facings Asbestos Textiles • Packings • Engineered Plastic, and Sintered Metal Products • Laundry Pads and Covers • Bowling Balls

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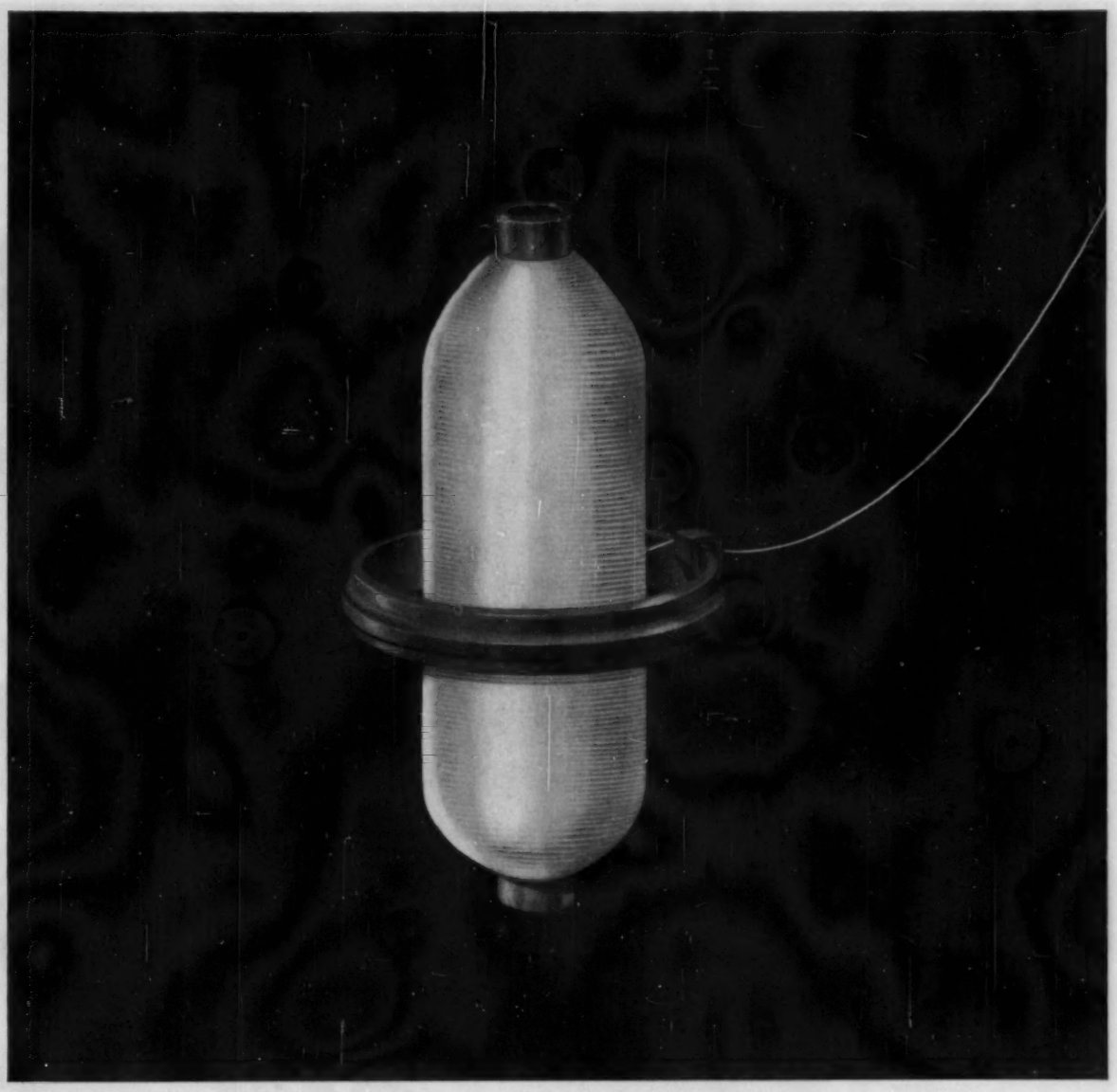

reduce wear, lengthen life of spindle bearings

Spinesso is a premium-grade lubricating oil for both spinning and twister spindle bearings. Its exceptionally high oxidation stability affords maximum bearing protection – and extends the time between lubrications considerably. Spinesso's high resistance to oxidation inhibits the formation of dark, sludge-like deposits that cause friction in the bolster – and stain yarn.

Spinesso is specially processed to provide an extra measure of protection against wear and to materially reduce rusting and pitting. Thus the problems most frequently encountered in high-speed bearing operations in humid textile mill atmospheres are minimized. Spinesso gives positive protection at all times – even at start-up when immediate and effective lubrication is essential.

Textile mills that have switched to Spinesso report *cleaner, longer-lasting spindle bolsters and blades—with less frequent lubrication.*

Spinesso is available in *three* viscosity grades. Get the whole story on this fine product . . . contact your nearest Esso Standard Oil Co. Division Office: Boston; Pelham, N. Y.; Elizabeth, N. J.; Bala-Cynwyd, Pa.; Baltimore; Richmond; Charlotte; Columbia, S. C.; Memphis; New Orleans.

FOR BETTER RESULTS

SPINESSO

Esso

PETROLEUM PRODUCTS

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← For more data, write this page number on Reader-Service card.

in carpeting, nothing adds wear like NYLON!

How does it wear? That's one of the most important questions consumers ask about carpeting. Permanent textures, higher recovery from crush, excellent resistance to matting, and greater resiliency are other important performance characteristics consumers want to know about. Nylon has them *all*, and they've been proved not only in the laboratory, but in *actual wear tests, too!* Flame-resistance? Nylon does not support flame. *No other fiber adds durability to floor covering like nylon!* The toughest possible traffic test proves... The Higher The Nylon Content—THE LONGER THE WEAR!

THE NEW Nylon Staple I·R·C

INDUSTRIAL RAYON CORPORATION, Sales Office: 500 Fifth Avenue, New York 36, New York · 627 Guilford Building, Greensboro, North Carolina

Identical strips of carpeting—without padding of any type—were laid on bare, rough steps in an industrial plant and subjected to heavy plant-personnel traffic. Each carpet contained a different percentage of nylon as indicated in the unretouched photograph shown. The carpets were rotated progressively and regularly. Top 3 samples were removed after stair-edge showed 80 to 95% pile destruction. Test for remaining 4 was stopped at the 98,000 pedestrian mark.

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SCRIM QUIZ

☐ TRUE FALSE ☐ In laminating, Fortisan rayon and Fortisan-36 rayon—due to great dimensional stability—require no heat setting or other stabilizing process many scrim fibers need.

☐ TRUE FALSE ☐ At low weight, Fortisan yarns give laminates excellent tear and unequalled stretch resistance.

☐ TRUE FALSE ☐ Awnings of laminates with Fortisan scrim have great shape retention. Despite temperature changes, stresses, wetting or drying they do not sag.

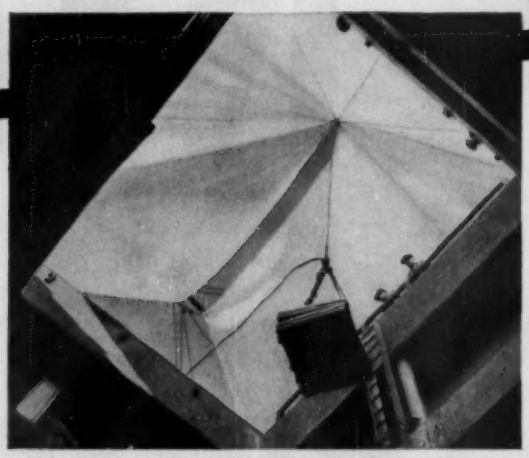
☐ TRUE FALSE ☐ Fortisan-36 laid scrim reinforcing increases paper closure tape strength 200%.

answers: (All four statements are true.)

Without question, strong, dimensionally stable Celanese Fortisan rayon yarns are the best news in light weight scrim, since scrim itself.

Such leading laminaters as Facile and Herculite or paper converters like Ludlow Papers, Inc., will testify to this.

Translucent and opaque, colored and printed vinyl laminated fabrics with Fortisan and Fortisan-36 scrims are now going into literally hundreds of uses—from tarpaulins, cargo and equipment covers, portable repair tents and life boat covers to awnings, beach umbrellas, convertible small boat tops and swimming pool covers. Paper converters are using these scrims to reinforce paper tape and crimped or creped heavy duty wrapping paper for baled cotton. These applications give such excellent and economical performance as to prove, once and for all, it doesn't pay to scrimp on scrim.



Light, translucent Herculite hatch'tent has Fortisan-36 scrim.

We invite you to see this proof at Celanese Corporation of America, Industrial Sales Department, Textile Division, Charlotte, North Carolina. Celanese®

District Offices

180 Madison Ave., New York 16, N. Y. — 22 W. Madison St., Chicago 2, Ill.

For Export

Amcel Co., Inc. and Pan Amcel Co., Inc. — 180 Madison Ave., New York 16, N. Y.

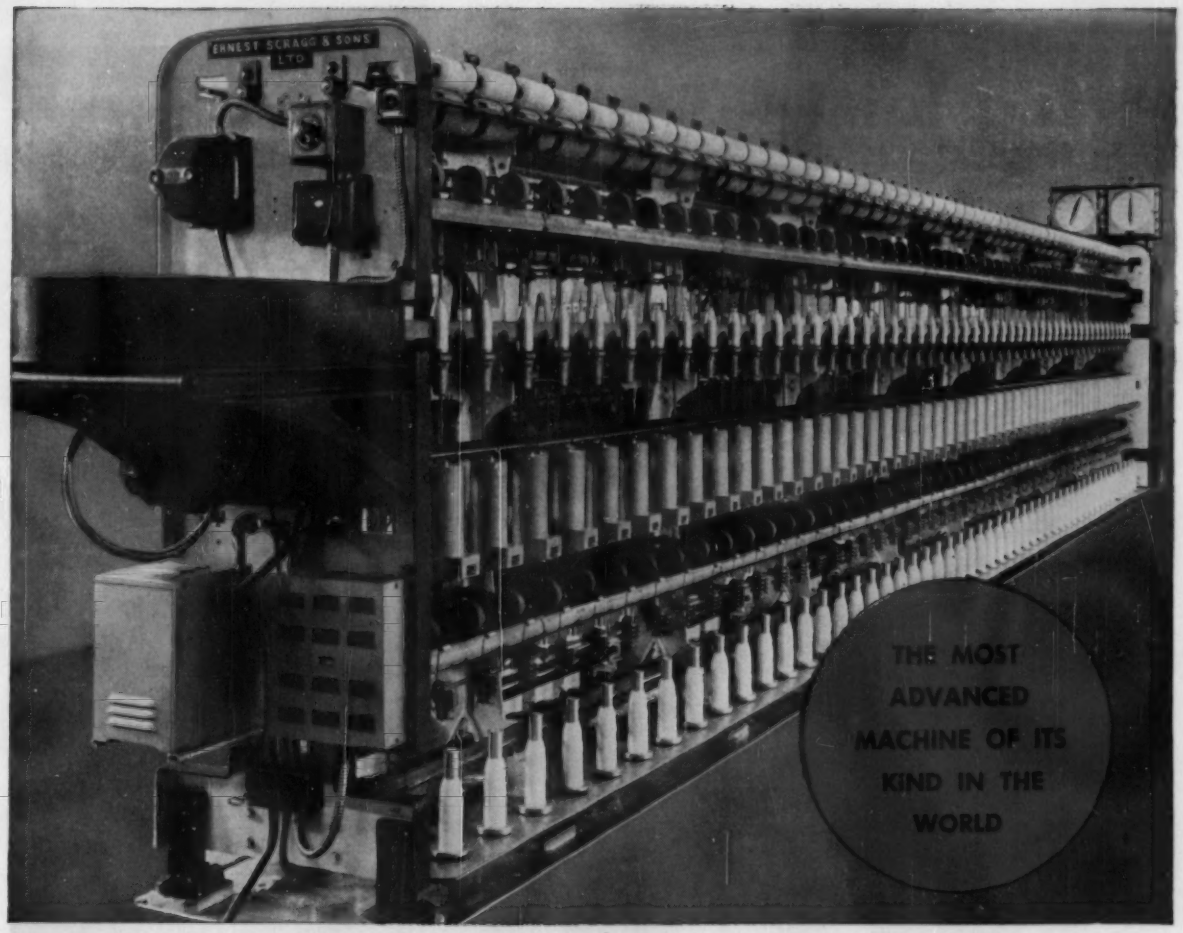
In Canada

Chemcel, Canadian Chemical and Cellulose Co., Ltd. — 2035 Guy St., Montreal, P. Q.

Burlington Industries weaves Fortisan and Fortisan-36 scrim

Celanese Fibers for Industry

ARNEL® TRIACETATE · FORTISAN® RAYON · FORTISAN®-36 RAYON · RESILUCEL™ · ACETATE · VISCOSE-RAYON



ONE OF THE SUCCESSFUL ERNEST SCRAGG MACHINES FROM THE KNITTING MACHINERY EXHIBITION AT LEICESTER, ENGLAND.

THE REVOLUTIONARY

C.S.1. CRIMP TWISTING MACHINE

Designed and manufactured throughout by ERNEST SCRAGG & SONS LTD., this remarkable machine produces finished crimp yarn in Nylon, Terylene, etc., in a single high-speed operation. Bristling with exclusive features, this new ERNEST SCRAGG triumph demands your closest attention.

- TREMENDOUS INCREASE IN PRODUCTION, WITH LOWEST COSTS
- VAST ECONOMIES IN FLOOR SPACE AND POWER CONSUMPTION
- PERFECTLY STRAIGHT YARN PATH
- ELECTRONICALLY CONTROLLED THROUGHOUT
- MINIMUM SPEED OF 30,000 r.p.m.

ERNEST SCRAGG & SONS LIMITED

ESTABLISHED 1889

ERNEST SCRAGG & SONS LTD.,

SUNDERLAND STREET WORKS, MACCLESFIELD, CHESHIRE, ENGLAND
Telephone: MACclesfield 2247/8/9 Telegrams: "SCRAGG," Macclesfield

CW 3884

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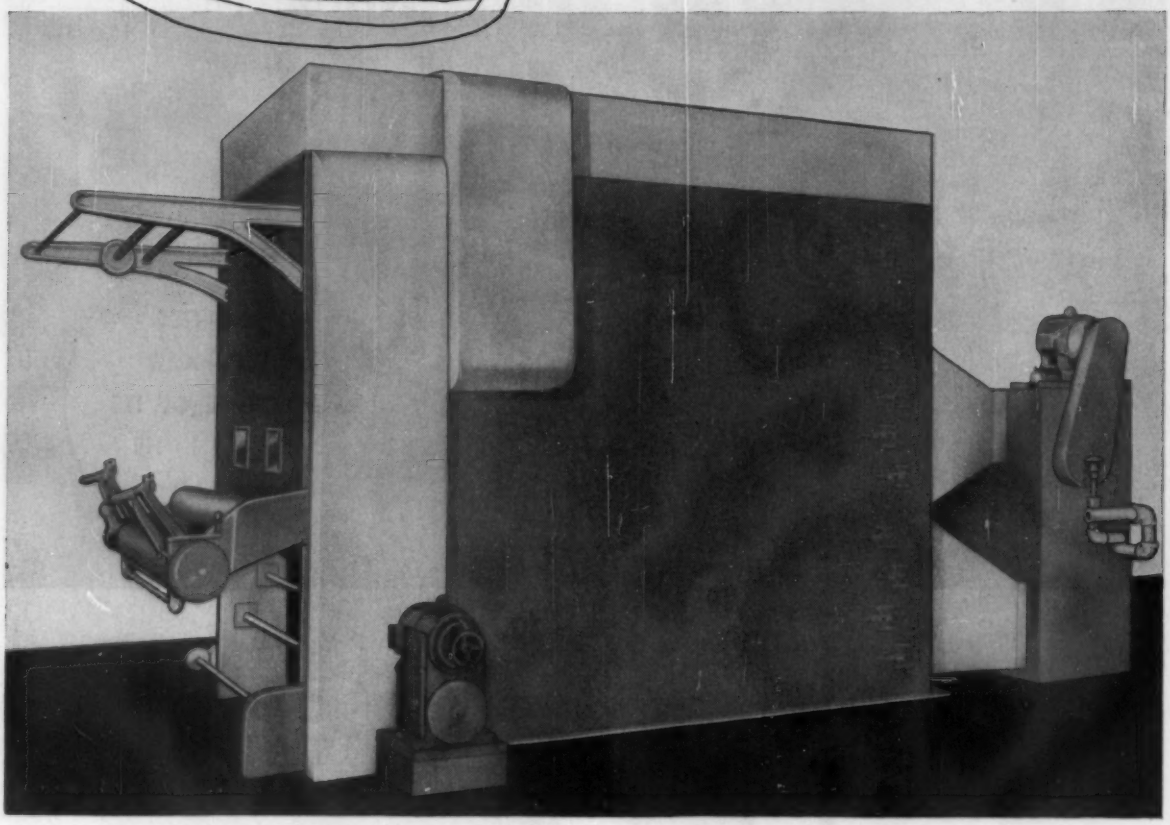
Shrink Your Textiles.....AND Your Costs!



Gessner's new Continuous Steam Sponging Machine has transformed textile sponging into a continually even, fast, economical operation — so fast in fact, that 25 yards of cloth per minute can be sponged and measured for yardage.

Evolved from six years of painstaking development, Gessner's new machine eliminates the problem of single roll winding, hit-or-miss manual tensioning, costly piece-by-piece handling, leaking cylinders and long cooling periods.

The Continuous Steam Sponging Machine — right now — is properly shrinking woolens, synthetics, blends and mixtures with almost unbelievable economy. May we talk more about it with you?

DAVID GESSNER COMPANY

WORCESTER, MASS.

Canadian Representative: W. J. Westaway, Montreal, Quebec, Hamilton, Ont.

Gessner Improved Cloth Finishing Machines maintain a standard of performance to meet the exact requirements of your cloth finishing

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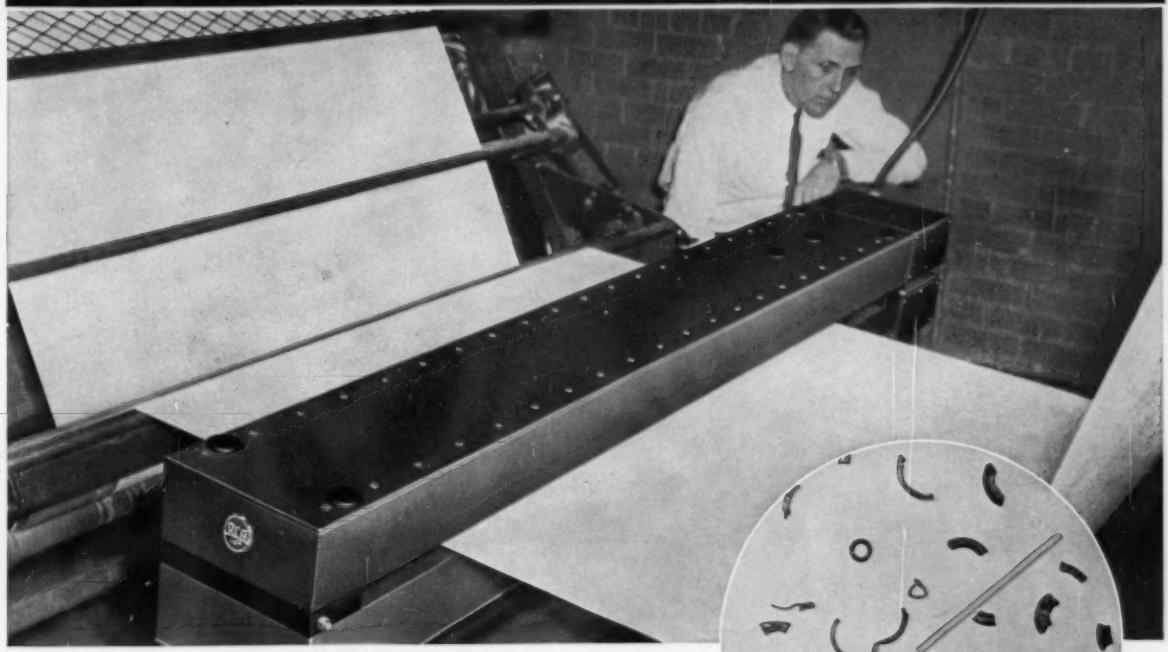
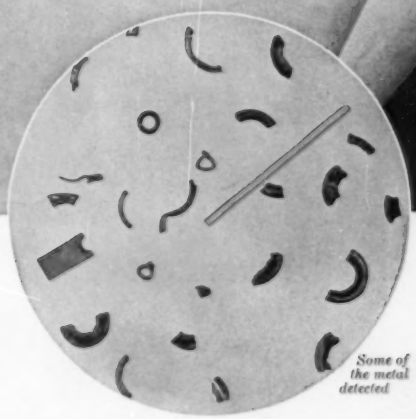
Prevent Costly Damage to Textiles!





Some of the metal detected

New RCA Metal Detector Spots These Troublemakers Before They Can Harm Equipment or Fabrics

At Klopman Mills, High Point, N.C.—one of the nation's outstanding quality mills—the RCA Metal Detector is installed before the shearing machine. It also can be used to protect the calenders in a finishing mill and in other vital locations where material can pass between the aperture that "sees" the tramp metal. It automatically detects metal particles of all types—both magnetic and non-magnetic—even though they may be woven or knitted into the fabric.

FOR SPEEDS UP TO 1000 FT. PER MIN. Used on strip material traveling at speeds from 10 to 1000 ft. per min. with full inspection sensitivity, it will detect a piece of metal smaller than a pinhead (1 mm dia.). Finding particles the eye could never see, the detector can be arranged to sound an alarm, or stop the traveling material.

EASY TO OPERATE. Anyone can operate this equipment with ease and safety because of simple Control Unit design and complete absence of moving parts or exposed electrical connections.

PAYS FOR ITSELF! Wherever installed, RCA Metal Detectors have paid for themselves—two or three times in a year—in longer life of costly machinery, decreased downtime and savings in product. Price in U.S.A. $2650, f.o.b. Camden.

The RCA Metal Detector can be put to work quickly in your plant by maintenance personnel under the supervision of an RCA Service Company expert. Nationwide facilities are available to keep maintenance at a minimum. Get full particulars. Mail coupon.

Mark of RCA Quality

ELECTRONIC

METAL DETECTOR

RADIO CORPORATION OF AMERICA
Dept. S-140, Building 15-1, Camden, N.J.

In Canada: RCA VICTOR Company Limited, Montreal

Please send me information on the RCA Metal Detector for textile applications.

NAME _____ TITLE _____

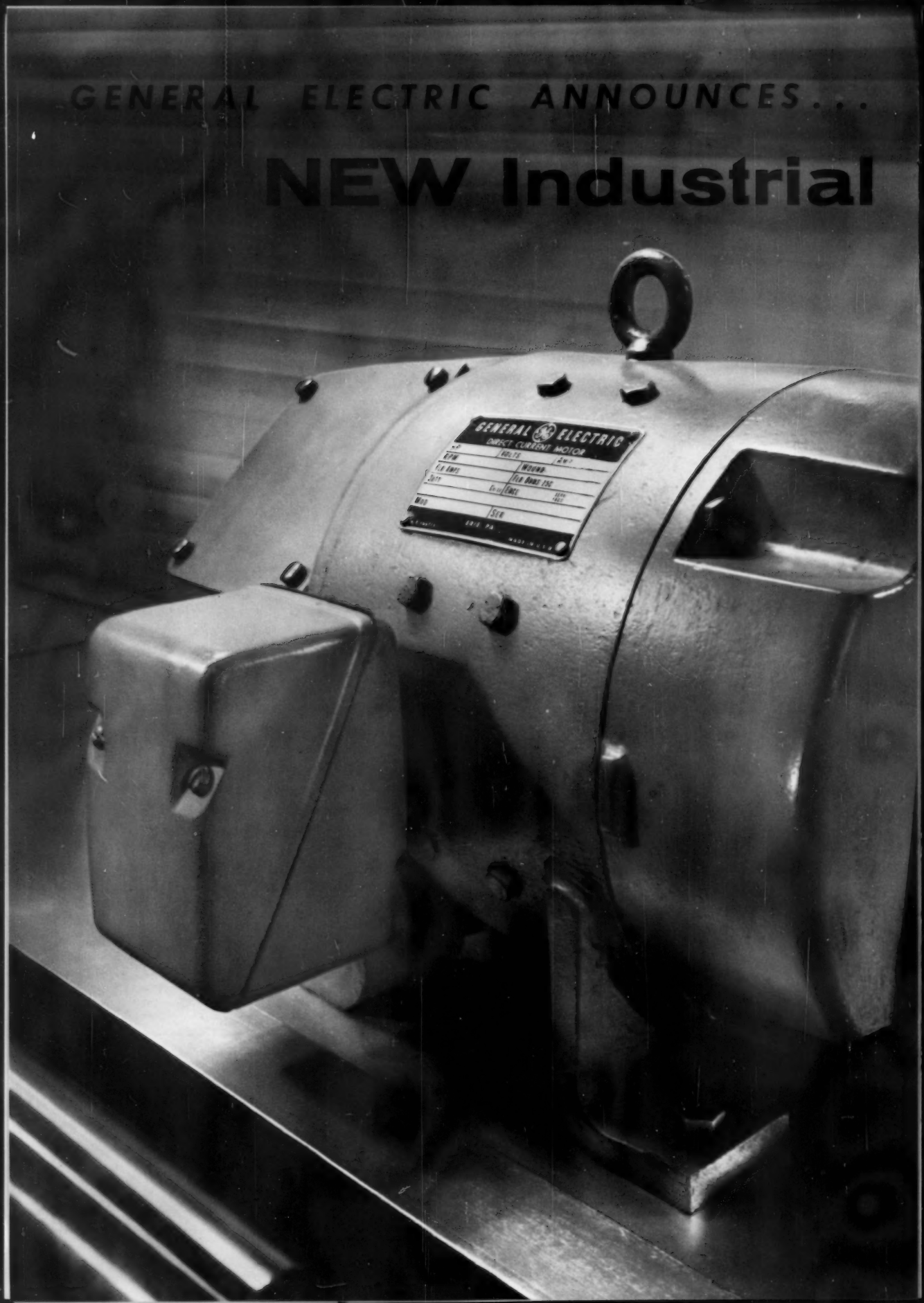
COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

GENERAL ELECTRIC ANNOUNCES...

NEW Industrial



Direct-current Motor

KINAMATIC* a new standard in direct-current motors, gives your machines wider speed ranges, greater output

To meet modern industrial needs for faster, more automatic, more continuous production, General Electric has designed an entirely new direct-current motor—the d-c Kinamatic.

Designed for Automation—Now, a direct-current motor has been designed for the modern job it has to do—either as individual motor drive or in regulating systems. The new General Electric d-c Kinamatic motor supplies the wide speed range and versatility required for today's manufacturing methods. It is designed for the close control of machines and split-second timing of processes essential to higher output.

Accelerated Production—The new d-c Kinamatic motor will modernize your equipment, give it increased power, higher speeds, greater output capacity. With the quick-acting G-E Kinamatic motor, your machines will process a greater variety of products . . . faster . . . easier . . . and with less maintenance and spoilage.

More Powerful—By combining advanced design with improved materials and manufacturing techniques, General Electric engineers have packed more power into the entire Kinamatic line. The powerful Kinamatic motor, with new stamina and durability, is ready to become one of your most effective weapons for keeping costs down, for meeting competition, for boosting productivity levels.

Engineering Help—Industrial specialists in 149 conveniently located General Electric Apparatus Sales Offices have the complete story on how the new d-c Kinamatic motors and generators can benefit your operation. For full details, contact your G-E Sales Representative, or write for Bulletin GEA-6355. *Direct Current Motor and Generator Department, General Electric Company, Erie, Pennsylvania.* 813-1

* Trade Mark of the General Electric Company

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GENERAL ELECTRIC

- AIR CONDITIONING
- BROKEN END REMOVAL
- CARD STRIPPING
- DRYING

- Full details on request

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Aérodynamics - Thermodynamics

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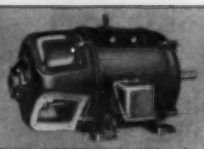
R. L. Guyot

for your textile applications

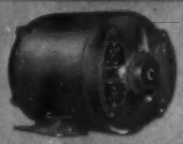
Century Motors are Performance-Rated©

to specific mill equipment requirements

pickers • roving frames • spinning and twisting frames • cone winders • warp mercerizers .. agitators • dryers • mixers compressors • pumps • and other equipment



SELECTIVE SPEED DRIVES—1 to 150 H.P. For warpers, slashers; for range drives in finishing plants. Operate from A.C.; respond to changes in operations and automatically adjust speed to fit the job. Broad range of stepless speed control; respond to wide variety of remote control devices. Send for Bulletin 11-1P1.



DRIP PROOF, FULLY PROTECTED FRACTIONAL H.P.—1/20 to ¾ H.P. AC, single or polyphase. Send for Bulletin 1-1P1.

GEAR MOTORS—1 to 125 H.P. (parallel); ⅛ to 3 H.P. (right angle), A.C. or D.C.; speed to fit your need. Send for Bulletin.

RIGID BASE, OPEN TYPE, PROTECTED—1 to 400 H.P.; A.C., single or polyphase; for use in finishing, bleaching and dyeing plants, and print works. Send for Bulletin 6-1P1.

EACH MOTOR IS RIGHT FOR ITS JOB BECAUSE . . .

Century Performance-Rating enables you to select precisely the right motor size, speed, frame, and torque characteristics to fit each specific application requirement.

Mail coupon now for free Bulletins . . . or call or write your nearby Century District Sales Office or Authorized Distributor.

To CENTURY ELECTRIC COMPANY
1806 Pine Street, St. Louis 3, Mo.
Please send me the following bulletins:

(fill in numbers here).....

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Name..... *Title*.....

Company.....

Address.....

City..... *Zone*..... *State*.....

82-R

Performance-Rated ©
MOTORS
1/20 to 400 H. P.

CENTURY ELECTRIC COMPANY

1806 Pine Street • St. Louis 3, Missouri • *Offices and Stock Points in Principal Cities*

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Satisfied Customers are our Best Advertisement

FROM OUR REPS

U. S. field men are in a position to bring a wealth of experience and information into focus on a specific traveler application you may be "fighting". U. S. reps listen attentively, recommend intelligently and follow through energetically —

To help solve your traveler problems.

FROM OUR STOCKS

From large stocks at Providence and Greenville, our normal procedure is immediate shipment in full; or in any case enough to keep you going without interruption. Once familiar with your needs, we anticipate your requirements so that —

Your orders can be shipped consistently from stock.

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Southern Warehouse: 1443 Augusta Road, Greenville, S. C.

A Style and Size for Every Yarn and Fibre

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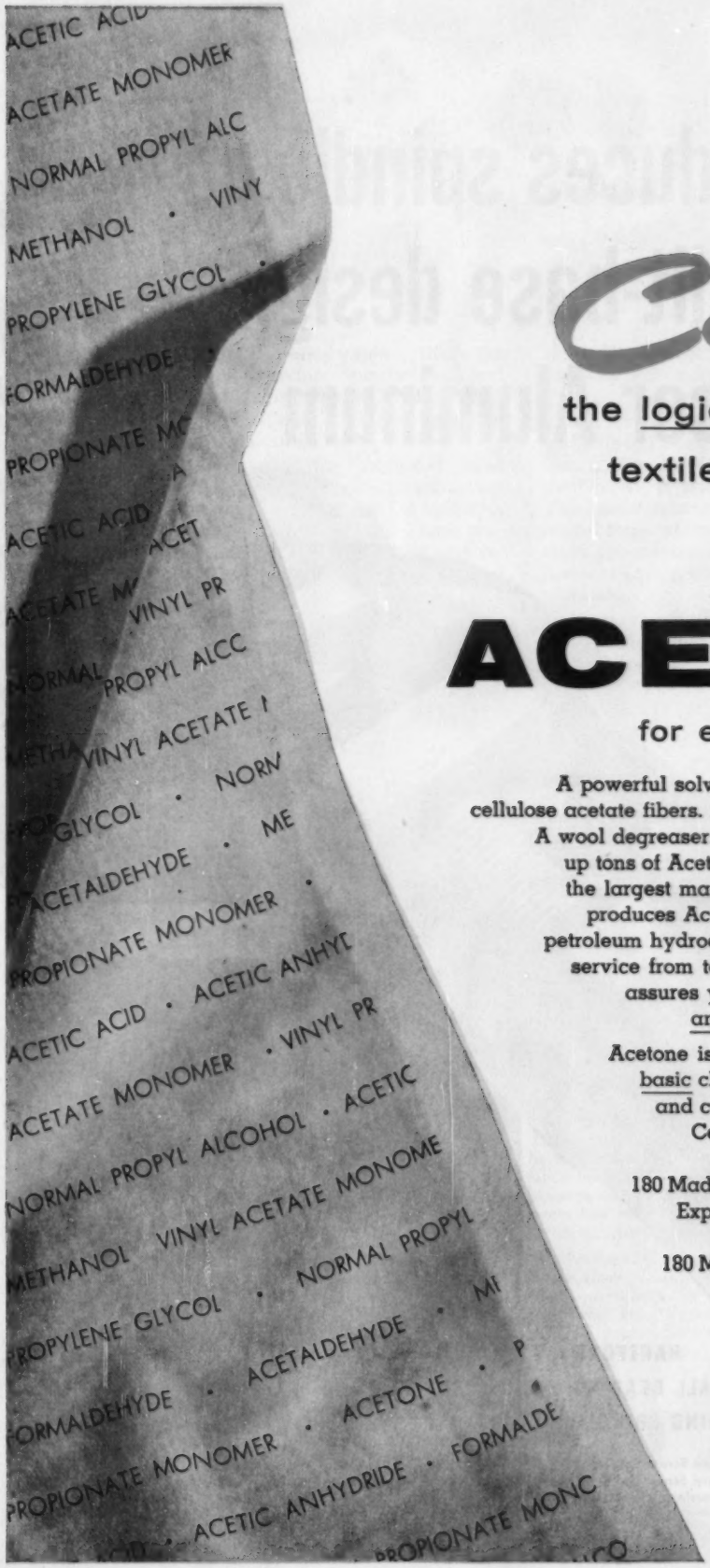
L. H. MELLOR, JR., Mid-Atlantic States, 123 Treaty Rd., Drexel Hill, Pa. • HIlltop 6-1563

H. R. FISHER, Concord, N. C., Box 83 • Phone 2-8930



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textile chemicals

ACETONE

for example . . .

A powerful solvent basic to the manufacture of cellulose acetate fibers. A constituent of fabric coatings. A wool degreaser. These textile applications soak up tons of Acetone each year. Celanese, one of the largest manufacturers of textile chemicals, produces Acetone by controlled oxidation of petroleum hydrocarbons. Our complete shipping service from terminals and distribution points assures you of prompt Acetone delivery anywhere . . . anytime you need it.

Acetone is just one of the growing list of basic chemicals produced by Celanese and consumed by the textile industry.

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Celanese CHEMICALS

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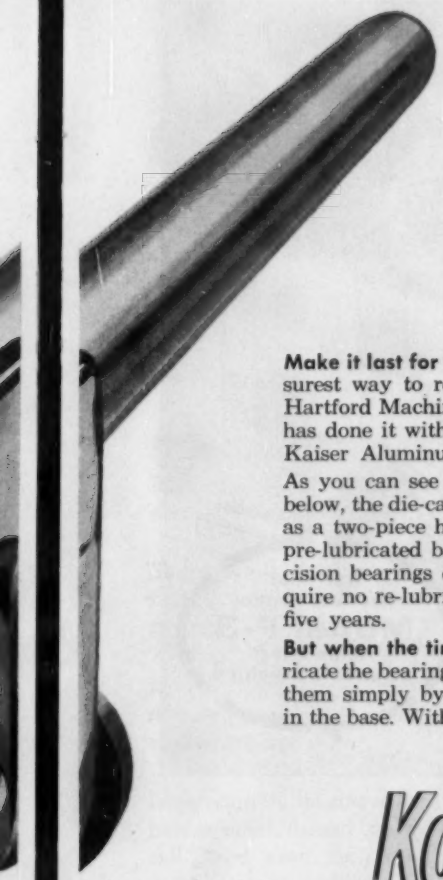
Hartford reduces spindle cost with split-base design in Kaiser Aluminum

HARTFORD
BALL BEARING
SPINNING SPINDLE

Manufactured by Hartford Machine Screw Company, Division of Standard Screw Company, Hartford, Connecticut

← For more data, write this page number on Reader-Service card.



Make it last for thirty years... that's the surest way to reduce spindle cost, and Hartford Machine Screw Company, Inc. has done it with its split-base design in Kaiser Aluminum.

As you can see in the "exploded" view below, the die-cast aluminum base serves as a two-piece housing for the spindle's pre-lubricated ball bearings. These precision bearings eliminate oiling and require no re-lubrication for an estimated five years.

But when the time does come to re-lubricate the bearings, you can quickly reach them simply by removing three screws in the base. With this simple design provision for periodic maintenance, the bearings can last up to thirty years!

This split-base design provides the usual means for attaching a spindle to the rail, while its lightweight aluminum construction makes handling easier and gives permanent protection against rusting. The lightweight aluminum bobbin blade, made from aluminum screw machine stock for minimum machining cost, reduces stopping and starting inertia, cuts vibration.

In short, the Hartford spindle design in Kaiser Aluminum gives you the simplest of maintenance... *and* the least need for it!

Kaiser Aluminum

the bright star of metals

See "THE KAISER ALUMINUM HOUR." Alternate Tuesdays, NBC Network. Consult your local TV listing.

MORE KAISER ALUMINUM FOR THE TEXTILE INDUSTRY

Shown below are some of the specialized textile equipment designs made more efficient and more economical with Kaiser Aluminum mill products.

Spindle rails, as an example, may be extruded in aluminum to the *exact shape wanted*... accurate within thousandths of an inch. Result? — maximum working efficiency, minimum first cost.

Aluminum can be fabricated by all known techniques, and offers you a unique combination of useful physical and chemical properties for important textile machinery applications:

Light weight and strength that reduce inertia and cut power needs for high-speed revolving components.

Resistance to shock that gives greater efficiency and longer life to impact-receiving components.

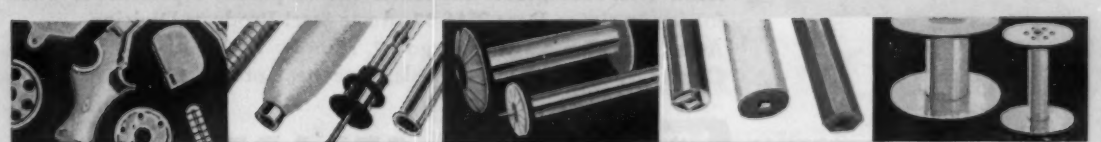
Thermal conductivity that eliminates "hot spots," distributes heat evenly in drying operations.

Heat and light reflectivity that improves drying process and lighting equipment service.

Electrical conductivity that improves economy for virtually all electrical purposes.

This remarkable versatility is now bringing aluminum to an ever-wider range of high-performance applications in the textile industry. And whether for new components or for new machines, Kaiser Aluminum engineers are ready now to work with you to improve the function, durability and economy of your equipment.

For further information and immediate assistance, call the Kaiser Aluminum sales office listed in your telephone directory. Or write Kaiser Aluminum & Chemical Sales, Inc., *Executive Office*, Kaiser Bldg., Oakland 12, California; *General Sales Office*, Palmolive Bldg., Chicago 11, Illinois.



Die Castings
Pig & Ingot

Bobbins and Adapters on Spinning Spindles
Rod & Bar

Warp Beams
Castings & Extruded Tube

Cloth Rolls & Stock Shells
Extrusions

Spools & Bobbins
Sheet, Tubing, Extrusions

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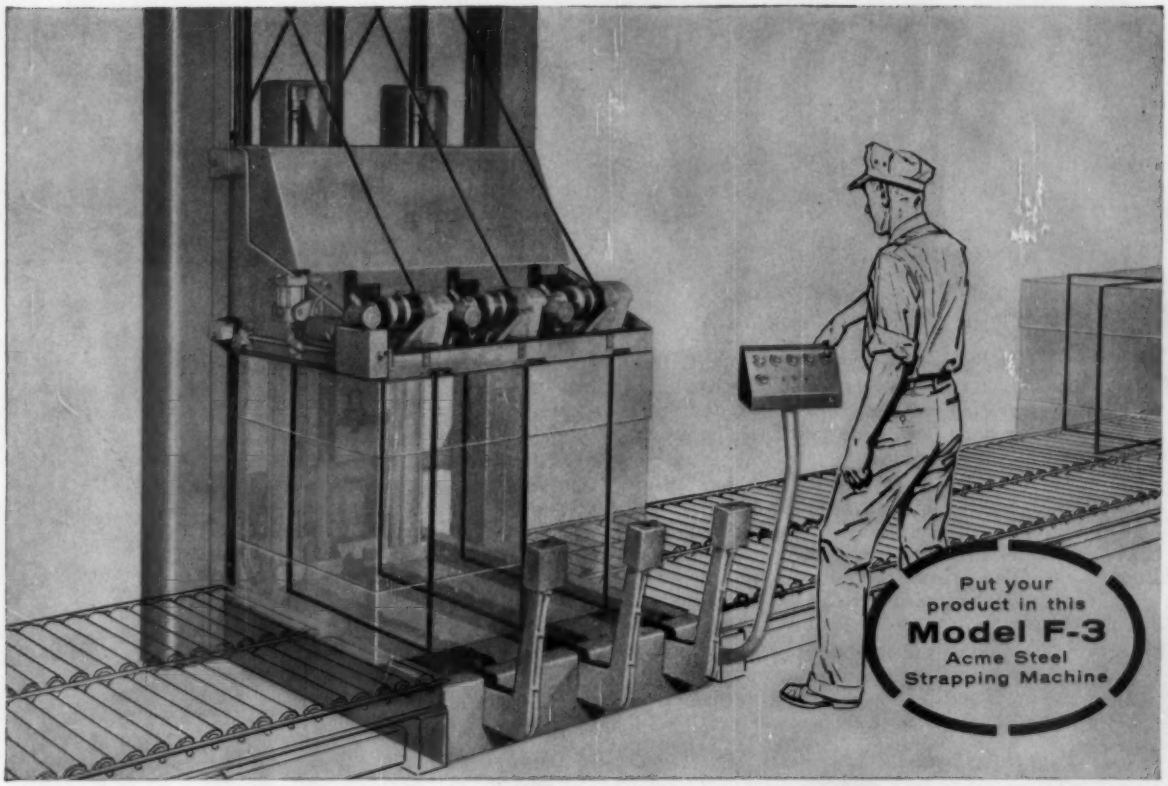

Depend on your AIM* as others do and profit...

Automatic compression idea aids packaging production

IN SWIFT SINGLE-OPERATION SUCCESSION the Model F-3 Acme Steel Strapping Machine compresses the pack and then tensions, seals and cuts up to three steel straps automatically. If your products pack best through application of compression, the F-3 will help you to fast, clean, economical, low-cost, high-production packaging. And varying sizes of containers can be handled without machine adjustment, varying pressure or output interruption. Operation is push-button simple and allows bands to be in place before the package enters the machine since the F-3 is the only machine that feeds strap around the package. The F-3 Machine steel straps packages up to 65" wide, 84" tall. Minimum package thickness is 12". The only machine to combine compression with steel strapping, the F-3 has an air-actuated, adjustable and completely controlled platen.

Write us for the identity of the Acme Idea Man best equipped to discuss your packaging problems.

***Depend on Your Acme Idea Man.** He is a specially trained consultant on better ways to package any product through use of Acme Steel Ideas, tools and materials. To put his experience to work for you, write to Dept. TAS-57, Acme Steel Products Division, Acme Steel Company, Chicago 27, Illinois. In Canada, Acme Steel Co. of Canada, Ltd., 743 Warden Avenue, Toronto 13, Ontario.

ACME STEEL **STEEL STRAPPING**

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Perfected Cleaning!

ceiling to floor

- Each unit self-propelled.
- Independent air streams for room surfaces, frame areas, floor.
- Air directions and velocities are adjustable. Automatic dampers available.
- Sleeves below head height are flexible.
- Frame cleaner adaptable to all creels.

ROOM CLEANER (revolving continuously) for ceiling and other overhead surfaces. High velocity air.

FRAME CLEANER

Rugged track with shielded electric contactors.

Short sleeve for top creel board, tapers and spare roving.

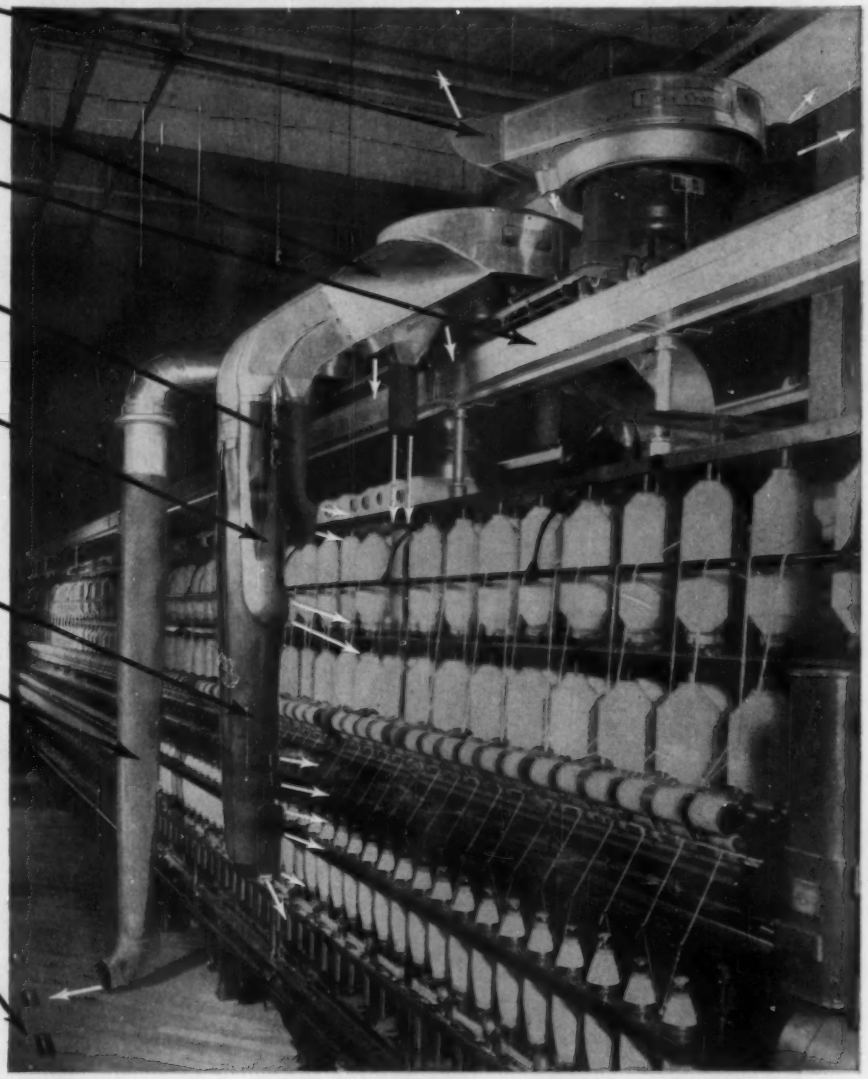
Medium length sleeve for middle creel board and roving tapers.

Long multi-outlet sleeve for bottom creel, thread board, roll stand area, ring rail, spindle rail and underframe. High velocity air.

FLOOR SWEEPER

Floor sweeper outlet turns on curves. Low velocity air.

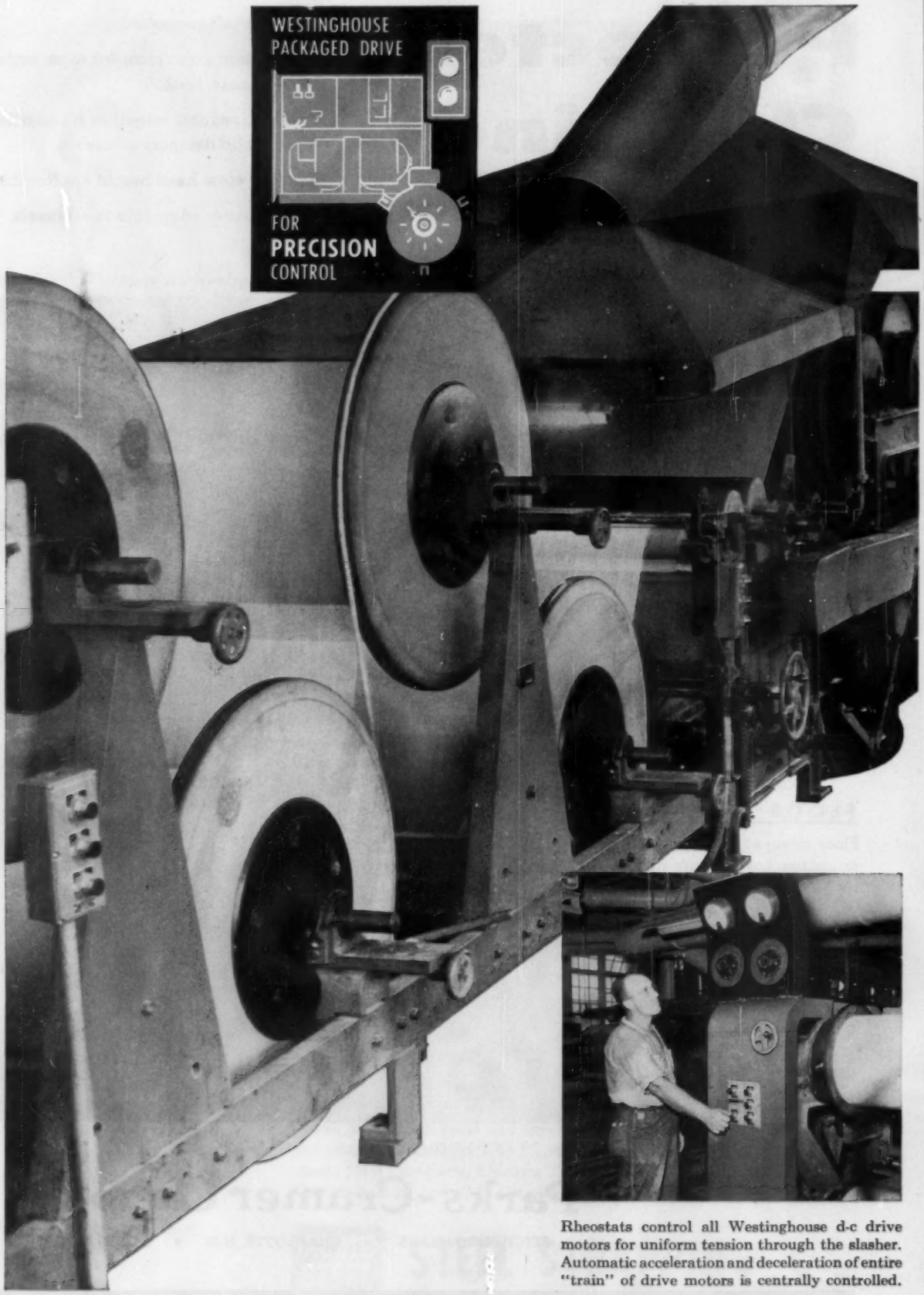
Vacuum removal of floor sweepings at two or more alleys.



Parks-Cramer Company

FITCHBURG, MASS. • CHARLOTTE, N.C. • ATLANTA, GA.

405

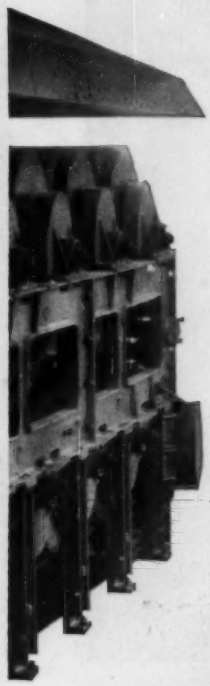


Rheostats control all Westinghouse d-c drive motors for uniform tension through the slasher. Automatic acceleration and deceleration of entire "train" of drive motors is centrally controlled.

← For more data, write this page number on Reader-Service card.

"Westinghouse AV-DRIVE doubles slasher production at a plant of The Kendall Company,"

says Engineer at Newberry, S. C. Kendall plant



Speed of the Kendall slashers, handling cotton warp yarn can be varied from over 100 yards per minute with less than 1,000 ends to a somewhat slower speed for over 2,500 ends. Rugged and dependable Westinghouse AV Drive permits production of about 1,750,000 yards of cloth each week at the Mollohon plant.

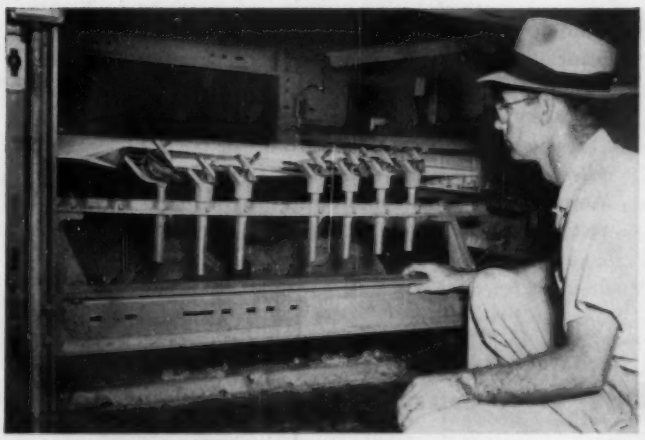
Two Westinghouse AV Drive-equipped slashers have replaced *four* weighted friction clutch-type units that required manual adjustments. "The AV Drives have saved us a lot of money, made our sizing operation completely automatic and doubled our production," states The Kendall Company engineer.

To learn how the versatile Westinghouse AV Drive can make your production more profitable, call your local Westinghouse representative or write Westinghouse Electric Corporation, 3 Gateway Center, P. O. Box 868, Pittsburgh 30, Pennsylvania.

J-22012

YOU CAN BE SURE...IF IT'S

Westinghouse®

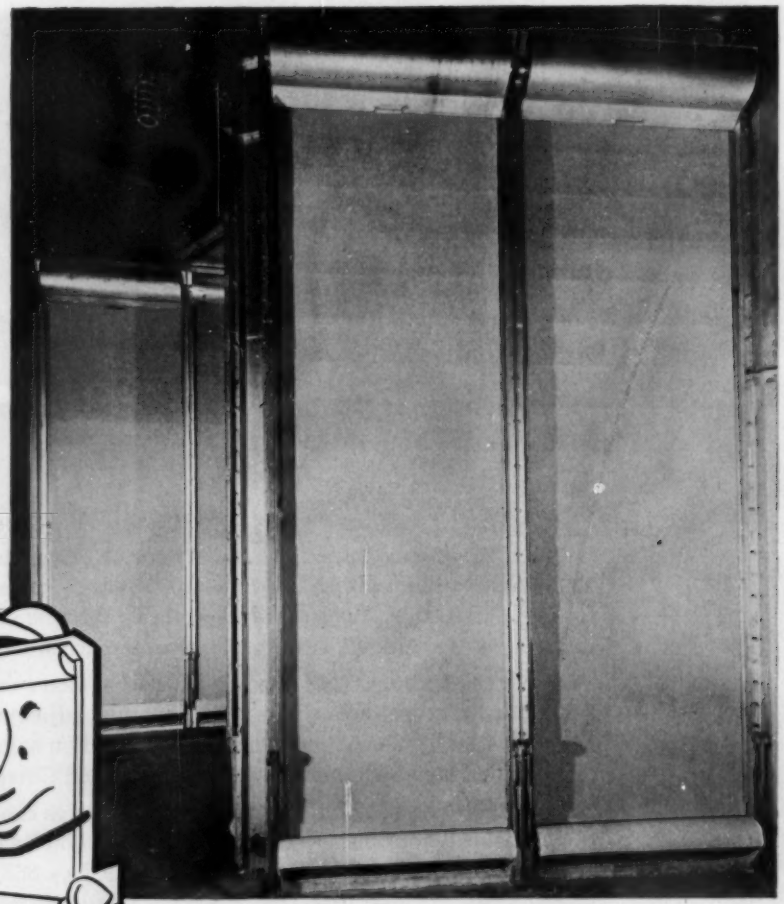


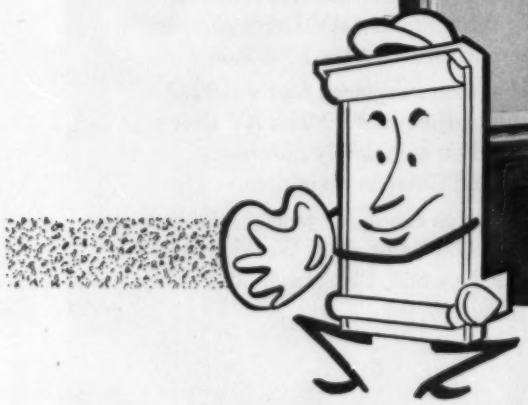
Inspector checks Mollohon plant slasher as machine sizes cotton warp yarn. Precision control prevents breakage of delicate yarns and time-consuming rethreading.

AV Drive, providing on-the-spot conversion of plant distribution system a-c voltage to the required direct current for precision control of the drive motors.

For more data, write this page number on Reader-Service card. →

Auto-AIRMAT filters CATCH LINT for INMAN MILLS





"V" arrangement of Auto-AIRMAT filters at Inman Mills plant. Air-conditioning system designed and installed by Buensod-Stacey, Inc., Charlotte, N. C.

Automatic AAF filters supply 597,400 cfm of lint-free air to South Carolina plant

Lint doesn't have a chance to "foul up" operations at Inman Mills, Inman, S. C. Auto-AIRMATS—the AAF lint filters—are protecting eight air conditioning systems supplying nearly 600,000 cfm of clean air.

Auto-AIRMAT is the *only* filter designed to remove lint fibres from the air and clean itself at the same time! Airmat filtering material, winding from roll at top of unit, moves automatically down the face of the filter, collecting lint all the way—re-winds into easily disposable roll at bottom.

If you have a lint problem, investigate the *lint filter*—the AAF Auto-AIRMAT. Call your local American Air Filter representative or write direct for Bulletin 234.

Herman Nelson Unit Blowers

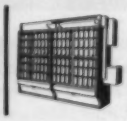
Herman Nelson Propeller Fans

AAF American Air Filter COMPANY, INC.

304 Central Avenue, Louisville 8, Kentucky
American Air Filter of Canada, Ltd., Montreal, P. Q.

— BETTER AIR IS OUR BUSINESS —

Illinois Heating Specialties



Air Filters and Precipitators

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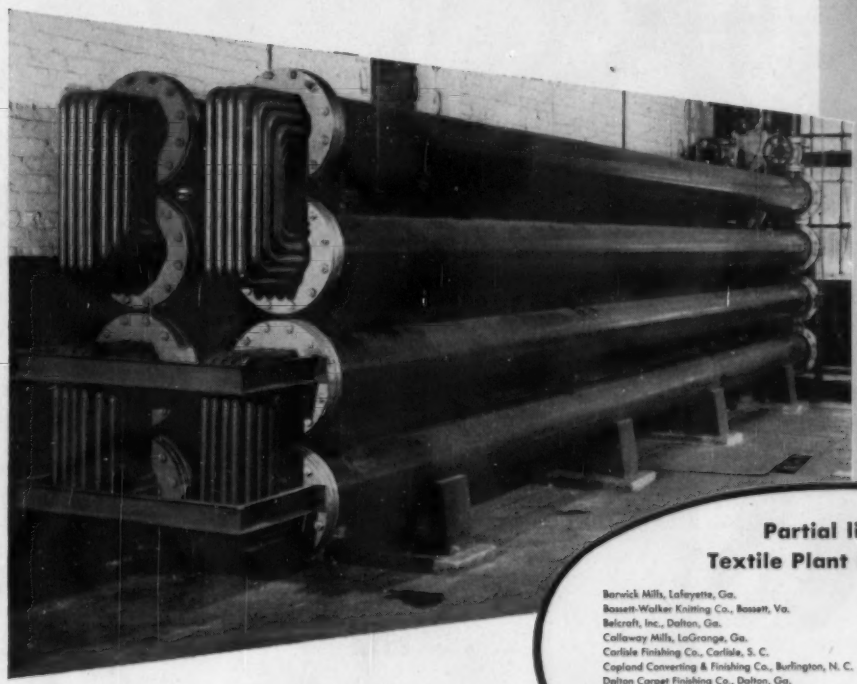
ENGINEERING KNOW-HOW IS BUILT INTO EVERY BREADY SYSTEM OF HEAT RECOVERY



Partial list of Laundry Plant installations

INDUSTRIAL

Acme Sanitary Wiper, Milwaukee, Wis.
Arrow Overall Service, Philadelphia, Pa.
Atlas Coverall & Uniform Supply Co., Los Angeles, Cal.
Baltimore Overall Cleaning Co., Baltimore, Md.
P. H. Berman & Son, Inc., Philadelphia, Pa.
Harry Brenner Waste Materials Co., Milwaukee, Wis.
Buckeye Garment Rental Co., Cleveland, Ohio
Buffalo Sanitary Wipers Co., Seattle, Wash.
California Overall Cleaning Co., Los Angeles, Cal.
Central Overall Laundry, Chicago, Ill.
Chattanooga Industrial Laundry, Chattanooga, Tenn.
Chicago Industrial Towel Service (F. W. Means & Co.), Chicago, Ill.
Clean Coverall Co., Chicago, Ill.
Clean Coverall Supply Co., St. Louis, Mo.
Commercial Towel & Uniform Co., Indianapolis, Ind.
Community Towel Service, Louisville, Ky.
Coverall Cleaners & Suppliers, Milwaukee, Wis.
Coverall Laundry Co., Chicago, Ill.
Coverall Rental Service, Fort Wayne, Ind.
Coyne Industrial Laundry, Syracuse, N. Y.
Dixie Overall Service, Greensboro, N. C.

LINEN SUPPLY

Abbott Linen Supply Co., Cincinnati, Ohio
Absolute's Linen Supply, Schenectady, N. Y.
American Laundry, Portland, Ore.
Anchor Laundry & Dry Cleaning Co., St. Louis, Mo.
Arcade Sunshine Laundry, Washington, D. C.
Atlas Linen Supply Co., Dayton, Ohio
Best Way Linen & Towel Supply, Chicago, Ill.
Broadway Laundry Service Co., Rockford, Ill.
California Linen Supply, Oakland, Cal.

FAMILY SERVICE

Adelman Laundry Co., Milwaukee, Wis.
Allis Laundry & Dry Cleaning, Milwaukee, Wis.
American Home Laundry, Hammond, Ind.
American Laundry, Chicago, Ill.
American Laundry, Muncie, Ind.
American Laundry, Seattle, Wash.
American Laundry, Yreka, Cal.
American Parisian Laundry, Fresno, Cal.
Anchor Laundry, Minneapolis, Minn.
Anderson Laundry, Anderson, Ind.
Archer Laundry Co., Chicago, Ill.
Atlas Wet Wash Laundry, Cicero, Ill.
Banner Laundry, Alexandria, Va.
Bedford Steam Laundry, Bedford, Pa.
Bend Tray Laundry, Bend, Ore.
Berlin Laundry, Berlin, Wis.
Best Grand Laundry, Indianapolis, Ind.
Billings Laundry Co., Billings, Mont.

Partial list of Textile Plant installations

Berwick Mills, Lafayette, Ga.
Bassett-Walker Knitting Co., Bassett, Va.
Belcraft, Inc., Dalton, Ga.
Callaway Mills, LaGrange, Ga.
Carlisle Finishing Co., Carlisle, S. C.
Copland Converting & Finishing Co., Burlington, N. C.
Dalton Carpet Finishing Co., Dalton, Ga.
Dalton Spread Laundry, Dalton, Ga.
Dixie Mercerizing Co., Chattanooga, Tenn.
Katherine Rug Mills, Dalton, Ga.
Lawtex Corp., Dalton, Ga.
McLaurin Corp., Asheboro, N. C.
Morgan Dyeing & Bleaching Co., Rochelle, Ill.
North Carolina Finishing Co., Salisbury, N. C.
Phoenix Dye Works, Cleveland, Ohio
Piedmont Processing Co., Belmont, N. C.
Shorewood Mills, Milwaukee, Wis.
West Point Mfg. Co. (Fairfax Mills), Fairfax, Ala.
Fruit of the Loom, Inc., Pontiac Div., Warwick, R. I.

DIAPER SERVICE

Crib Diaper Service, Minneapolis, Minn.
Infant Service, Inc., Chicago, Ill.
Syracuse Dy-Dee Service, Syracuse, N. Y.
Tiny Tot Diaper Service, Noblesville, Ind.
Tiny Tot Diaper Service, St. Louis, Mo.
Woe Folks Sterilized Diaper Service, Montreal, Quebec — Canada

INSTITUTIONAL

Home for the Aged, Vernon, B. C. — Canada
House of the Good Shepherd, Portland, Ore.
Kings Park Hospital, Kings Park, N. Y.
Provincial Mental Hospital, Essondale, B. C. — Canada
Sacred Heart Convent, Yankton, S. D.
St. Jean de Dieu Hospital, Montreal, Quebec — Canada
St. Francis Hospital, Milwaukee, Wis.
St. Luke's Hospital, Milwaukee, Wis.
St. Vincent's Hospital, Green Bay, Wis.
Southern Boys Colony, Union Grove, Wis.
Union Pacific Railroad, Ogden, Utah
Veterans Administration Hospital, Augusta, Ga.
Veterans Administration Hospital, Boise, Idaho
Veterans Administration Hospital, Brockton, Mass.

MISCELLANEOUS

Brown Forman Distillers (Main Plant), Louisville, Ky.
Brown Forman Distillers (Early Times Plant), Louisville, Ky.

You're in good company when the heat from your plant's hot waste water is recovered with a Bready. Over 1,000 users of Bready Systems are realizing the tremendous economy of automatically preheating incoming water with the heat from soiled water. Engineering know-how perfected these systems. Today, Bready Systems offer *guaranteed* performance and trouble-free operation—*do not require manual cleaning.* Investigate a Bready System for your own plant. Write Ludell for your descriptive folder or a preliminary survey.

Ludell *Manufacturing Company*

5200 WEST STATE STREET • MILWAUKEE 8, WISCONSIN

Representatives in the United States, Canada and Alaska

MANUFACTURERS OF BREADY SYSTEMS OF HEAT RECOVERY, BREADY SYSTEMS OF HOT WATER HEATING AND WHEELER SELF-UNLOADING WASHER

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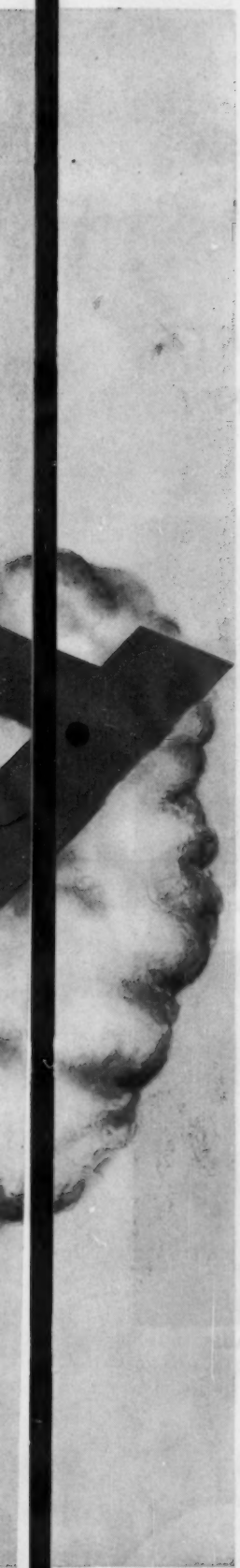


AND THEN WE REALLY PUT IT THROUGH THE MILL

. . . to assure top-spinning performance!

Acrilan's toughest customer is right here in the plant.

His standards are the most exacting in the industry. To earn his approval, every pound of Acrilan must have the right answers to questions like these:

How well does it lap? Card? Process on roving and spinning frames? What maximum percentage of fly can be expected? Is the web uniform? What about the quality of the card sliver?

The "customer" is our own pilot mill...operating a complete fiber processing system...at work 24 hours a day, 7 days a week...checking Acrilan performance under the conditions existing in your mill.

This, it should be noted, is *one* stage in a comprehensive philosophy and system of quality control, guiding Acrilan production from initial polymer to final staple cutting or tow packaging. A philosophy that believes product improvement depends on knowing that still more improvement can be made. A system based on control specifications, tolerances and inspection standards previously held unattainable for the newer, man-made fibers.

The Acrilan acrylic fiber produced to these specifications is what we "put through the mill" for equally critical testing in actual performance. The gains—in terms of *your* problems—can be stated most concretely:

- FAR BETTER FINISH CONTROL...*with the direct result of improved carding and spinning uniformity.*
- IMPROVED HIGH BULK PROCESSING ...*for greater assurance of fabric shrinkage control.*
- FLY REDUCTION *so significant it is raising yarn quality, reducing mill costs and waste.*
- UNIFORM DYEABILITY...*no change in dye merges for over two years now.*
- STAPLE LENGTH UNIFORMITY *superior to the most demanding needs in the textile field.*

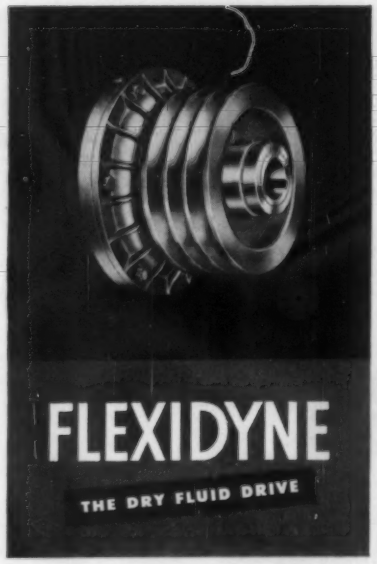
Obviously, these are meaningful advances... crucial to efficient, economical mill operation. They demonstrate why mill after mill for the last two years has cited Acrilan as its smoothest-running, top-spinning fiber.

ACRILAN

ACRILAN®

THE CHEMSTRAND CORPORATION • GENERAL SALES OFFICES: 350 FIFTH AVE., NEW YORK 1, N. Y. • DISTRICT SALES OFFICES: 3½ Overwood Road, Akron, Ohio; 4 Pearl Street, Dedham, Mass.; 222 South Church Street, Charlotte, N. C. • PLANTS: ACRILAN® ACRYLIC FIBER—Decatur, Ala.; CHEMSTRAND® NYLON—Pensacola, Fla.

For more data, write this page number on Reader-Service card. →



NEW DRIVE INSURES AMAZING SOFT STARTS FOR TEXTILE MACHINERY!

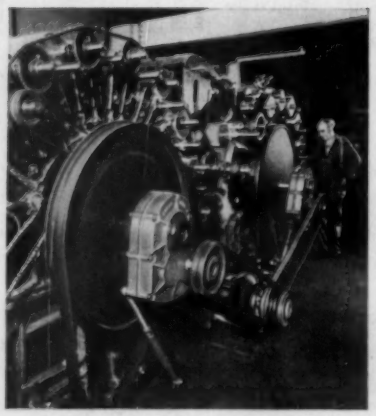
Flexidyne is an entirely new type of drive in which a dry flow charge of heat treated steel shot is employed to start loads *with fluid ease.* It accelerates quickly to full speed—and then operates *without slip at 100% efficiency.*

This revolutionary drive is being used with great success in:

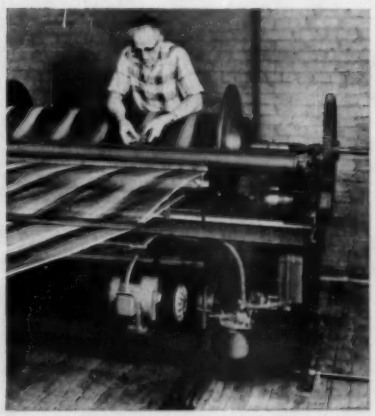
- cotton cards
- wool cards
- roving frames
- fly frames
- spinning frames
- slubbers
- openers
- tenter frames
- condensers
- extractors
- pickers
- beaters
- twisters
- warpers
- slashers
- cloth rolling heads
- cloth shearing machines
- and for synthetics, too

Ask your Dodge Transmissioneer for the full story. Or write us for Bulletin A-653.

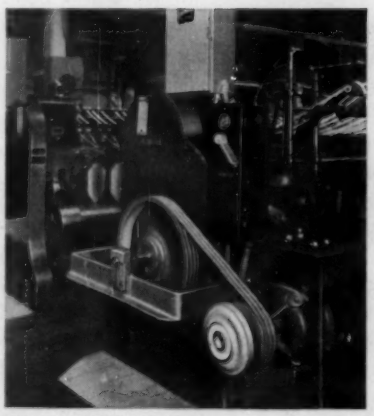
CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new methods. Look for his name under "Power Transmission Machinery" in the yellow pages of your phone directory. Or write us.



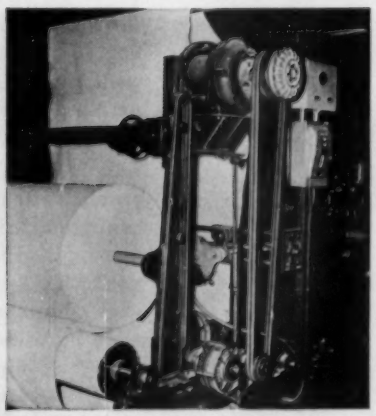
WOOL CARDS



LONG RAIL BEAM WARPERS



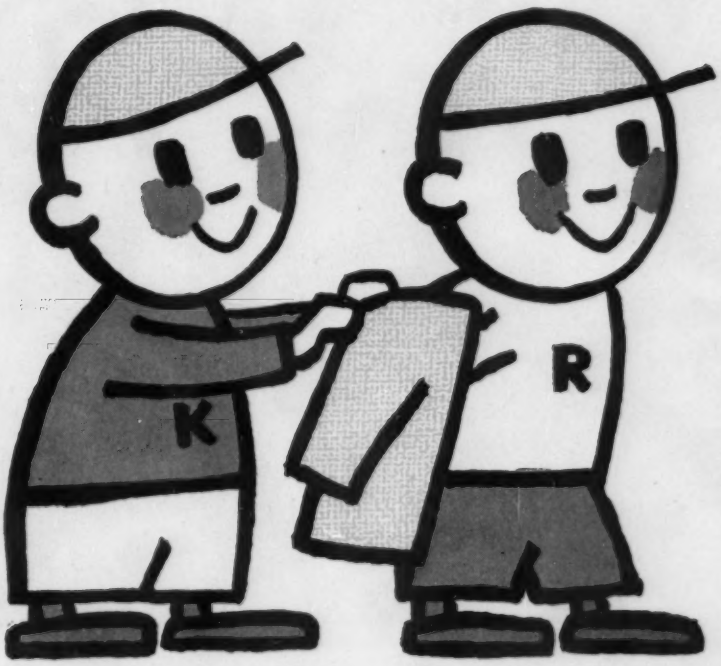
ROVING FRAMES



CORDUROY ROLLING HEADS

DODGE
of Mishawaka, Ind.

DODGE MANUFACTURING CORPORATION, 1400 Union Street, Mishawaka, Indiana



they are easy to put on

Gelva KR emulsions on cottons and synthetics eliminate the expense and inconvenience of solvent treatments. They are aqueous dispersions of water-insoluble polymers.

Gelva KR's are polyvinyl acetate emulsions which meet an extremely wide range of application requirements and offer an excellent choice as to viscosity, particle size, flow characteristics, drying time, film-forming properties, and compounding stability.

Gelva KR's are made and sold only by Shawinigan Resins Corporation. Shawinigan pioneered the production of polyvinyl acetate resins in 1929 and evolved the Gelva KR emulsions in 1944. For continued progress in research, production and application of polyvinyl resins for the textile industry—look to Shawinigan. For full details write Shawinigan Resins Corporation, Department 4305 Springfield 1, Mass.

SALES OFFICES: ATLANTA CHICAGO LOS ANGELES
NEW YORK SAN FRANCISCO

GELVA® KR ***emulsions for textiles***

SHAWINIGAN RESINS

For more data, write this page number on Reader-Service card. →

Fairbanks-Morse fire pumps provide 12,000 gpm. of water at 100 psi. for each of two systems.

World's largest jet aircraft center protected by F-M fire pumps

Four major aircraft companies—Lockheed, North American, Convair and Northrop—use the 5000-acre U. S. Air Force Plant No. 52 at Palmdale, Calif., for assembly and testing.

Maximum protection against fire at this gigantic operation was achieved at minimum cost by installing two identical, interlocking water supply systems, each equipped with Fairbanks-Morse pumps for both water supply and sprinkler pressure.

The size and scope of this installation indicate Fairbanks-Morse's ability to supply fire pumps for all magnitudes of industrial and municipal requirements. Whatever your needs in fire protection—big installations or small—your Fairbanks-Morse Field Engineer will be glad to work with your own engineers, in specifying the most efficient equipment. Call him today, or write Fairbanks, Morse & Co., Dept. TW-5, 600 So. Michigan Ave., Chicago 5, Ill.

FAIRBANKS-MORSE

a name worth remembering when you want the BEST

PUMPS • SCALES • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY • RAIL CARS • HOME WATER SERVICE EQUIPMENT • MOWERS • MAGNETOS

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Staley's presents:

Weavers Through The Ages

India...1000 B.C.

Woman weaving one of the many fine cotton hangings for King Solomon's famous temple in Jerusalem

In the days of ancient India, before the birth of Christ, the horizontal hand loom was extensively employed to weave the priceless cotton hangings of that culture.

Primitive as this loom is today . . . through the painstaking efforts of artisans like the maiden pictured here, the end results were truly works of art. So exquisite . . . so highly prized, in fact, that King Solomon commissioned his envoys to travel the slow, torturous journey to India . . . expressly to seek and purchase the finest cotton adornments for his famous temple in Jerusalem. The history of weaving could boast no nobler a beginning.

Today, however, our jet-age requirements for woven textiles of all types . . . for modern society's multiplicity of uses . . . could hardly rely on the turtle-pace production of ancient hand looms. By way of example, one fleeting moment's production on today's high speed equipment by far exceeds several weeks of tedious back-breaking work in bygone days.

We, at Staley's, pay tribute to the weavers through the ages . . . and compliment the mill operators of today for making production miracles a commonplace task. We continue to pledge our full resources in technical service and quality products to textile management everywhere . . . in full realization of the responsibilities to be met. New demands . . . new synthetics . . . new process developments . . . all give birth to new problems in sizing, finishing and printing. We stand aware and ready to help you meet and beat these challenges as we have been doing for three generations.

A. E. Staley Mfg. Co., Decatur, Illinois

Branch Offices: Atlanta • Boston • Chicago • Cleveland • Kansas City
New York • Philadelphia • San Francisco • St. Louis

A PRIME OUTLET FOR GOOD PUBLIC RELATIONS

and a desperately-needed public service

One of the most effective public relations jobs ever accomplished was achieved last year by hundreds of companies and individual businesses of every size.

These companies have been helping to sustain an advertising campaign that performs a desperately-needed public service: It shows the American people how to drive to stay alive. It also portrays the almost unbelievable fact that more than 40,000 men, women and children were killed in traffic accidents last year—and tells what to do to help stop highway homicide.

The campaign was prepared by a volunteer advertising agency in cooperation with The Advertising Council and The National Safety Council. But the over ten million dollars worth of time and space which carry the messages to the public was contributed by media owners or sponsored by business organizations, in the public interest.

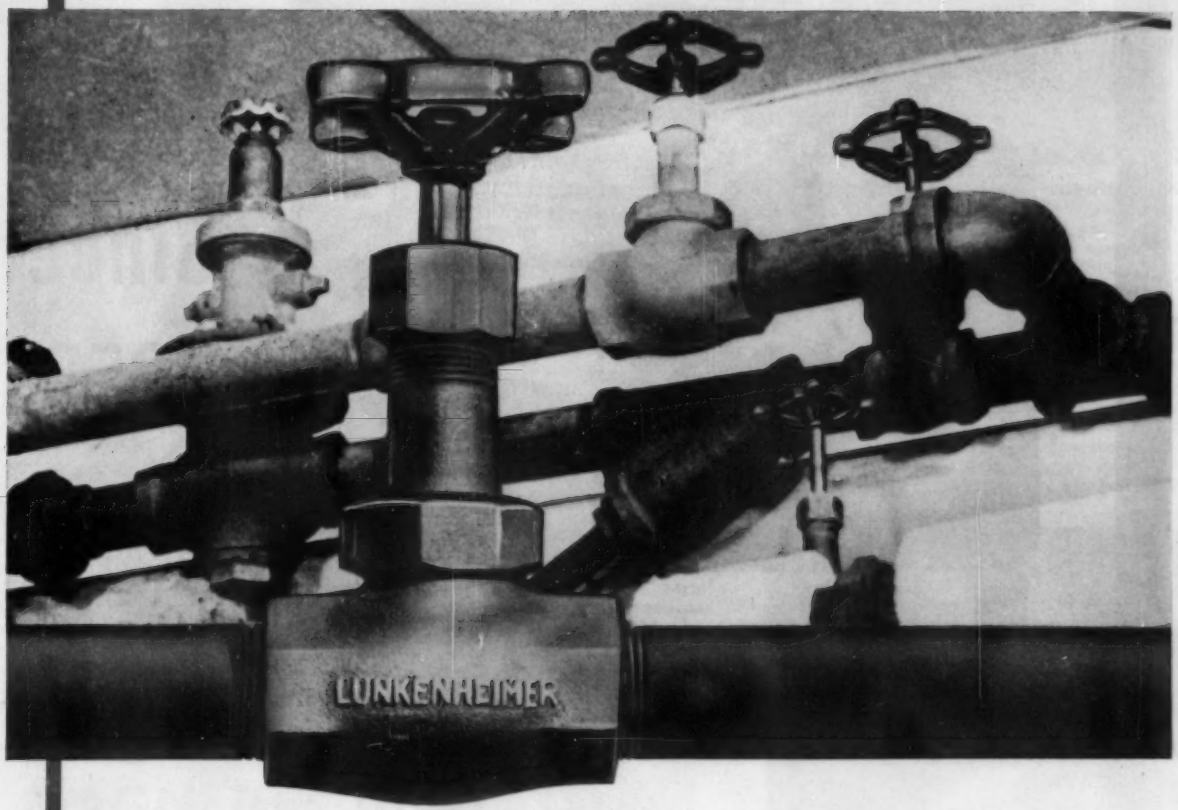
Your own plans may readily permit the inclusion of such advertising—both from the view of the vital public service it would perform, and the incalculable good will it would promote for your name, your company, and your product or service.

To find out how easily your own program can tie in with this nationwide effort, and for the complete story on who, what, when and where, we sincerely invite you to write to The National Safety Council, Chicago 11, Illinois.

Published in cooperation with
The National Safety Council
The Advertising Council

Don't let LOW-QUALITY drain away YOUR *Maintenance* DOLLARS

The cost of a LUNKENHEIMER VALVE *Gets smaller... and smaller... and smaller...* with each passing year of dependable service.



The price you pay for the average valve represents only a fraction of its total cost. Every time a valve requires repair, more and more of your precious maintenance dollars are drained away. With today's high labor costs, it takes only one or two repair jobs to spiral maintenance expense up to a point many times higher than the original price of the valve. That's why it always pays to install the best valves your money can buy. When you insist on the extra margin of good workmanship and quality materials that go into Lunkenheimer Valves, you get your investment back many times over in trouble-free, maintenance-free service. The Lunkenheimer Company, Cincinnati 14, Ohio.

There's a cost-minded Lunkenheimer Distributor in your area. Let him show you how Lunkenheimer quality can contribute to valve maintenance savings in your plant. And be sure to check the amazing performance records of LQ600, with patented Brinalloy® seats and discs.

L-357-18

- BRONZE
- IRON
- STEEL
- PVC

LUNKENHEIMER®

THE ONE *Great* NAME IN VALVES

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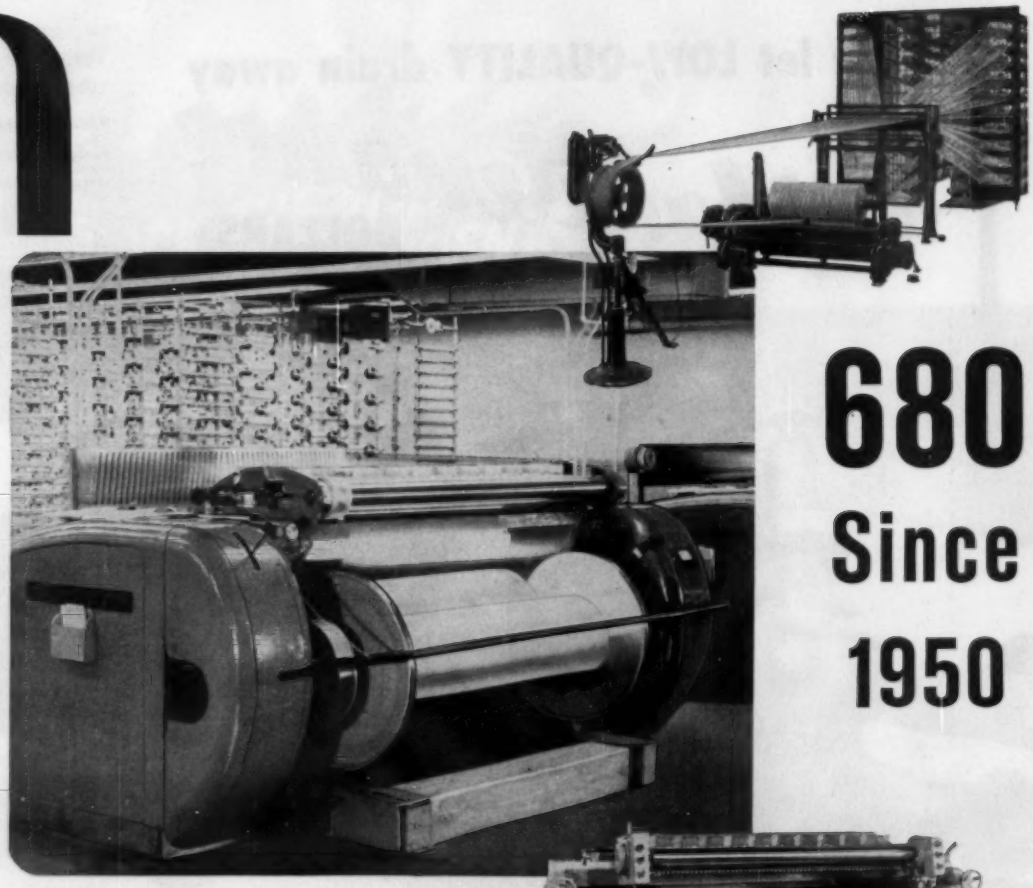
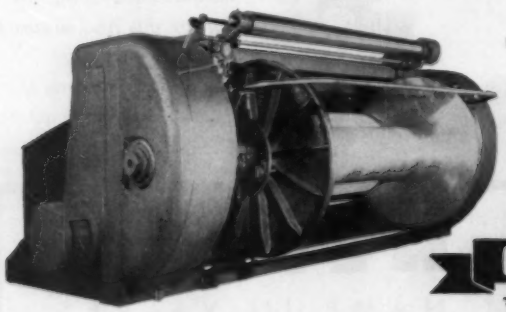


Cocker

680 Since 1950

. . . has installed over 680 warpers since 1950—approximately three times the volume of the next leading make. Speed, flexibility, economy, and many valuable exclusive features account for this outstanding popularity—from finest deniers to heaviest tire cord yarns.

Accurately maintained air operated pressure produces beams of any desired density, from hardest beams for extra hours of weaving to soft beams for perfect dye penetration. Speed and braking are rheostat controlled from both ends to provide smooth operation and instant stops at all speeds. Horizontal traverse on combs prevent channeling. Other features, such as air doffing, predetermining counter clocks, and electric speed indicators are standard on most models. Heavy construction practically eliminates vibration.



Whatever your warping requirements may be, there is a Cocker Machine which will do the job faster and better. Let us give you full information on the type you need.

THE LEADER COCKER AROUND THE WORLD

Machine and Foundry Co., Gastonia, N. C.

WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

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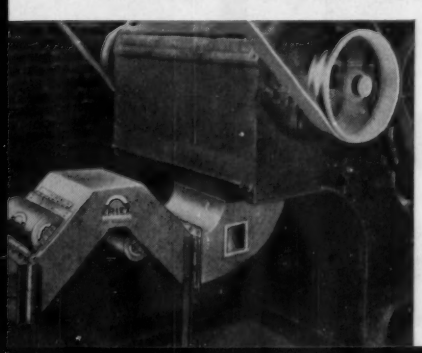
OLD IRON PANTS AND THE MAGNET! A lady from yesterday with a metal-ribbed girdle wouldn't be safe next to an Eriez Magnet. She might easily be "hung-up" by the powerful Alnico V action. This idea of herculean power is practically applied in textile processing lines. Magnets remove dangerous tramp iron preventing fires, machinery damage and loss of production in cotton, woolen, rayon and waste mills. *All Eriez Magnets are non-electric, self-contained. They operate without any wires or attachments. Best of all their magnetic power lasts a lifetime. The first cost is the last.*

MAGNETIC IDEAS FROM ERIEZ

TRAMP IRON CAN'T GET OVER THIS HUMP. Eriez Permanent Non-electric Magnetic Humps offer the ideal method of removing dangerous tramp iron from material conveyed in pneumatic lines. The patented Eriez Hump consists of 2 powerful plate magnets in an enclosed sheet-metal housing. The hump design changes the direction of the flowing material, creating a mixing or tumbling action. This directional change of the moving material allows the magnets to catch and hold spark-producing tramp iron. Eriez Magnetic Humps bear the Associated Factory Mutual Stamp of Approval for installation in textile mills, and are heartily endorsed by insurance companies as a means of reducing mill fires caused by tramp iron. Want more information? . . . request Bulletin 563.

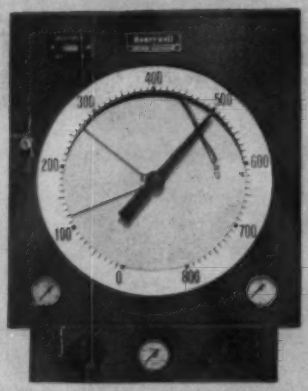


ERIEZ HI-POWR MAGNETIC SEPARATORS

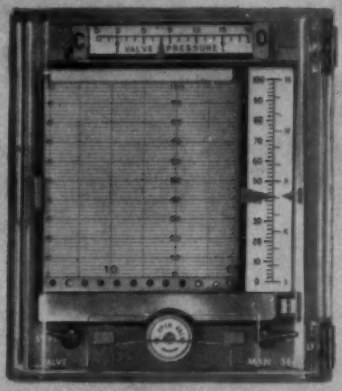
ERIEZ SPIKED-APRON MAGNET SPIKES METAL DAMAGE. Lawrence Garnet Co., Lawrence, Mass., produces garnet specialties of silk and worsted, white worsted and merino. As a precaution against tramp iron damage to the machines, Eriez Spiked-Apron Magnets were installed in the feeder boxes. This step proved highly successful, and the magnets removed large quantities of knitting needles, pieces of spindles, ring travellers, etc., from the processing lines. Previously, any metal such as this would put the machine out of use for days or even weeks, seriously curtailing production. So efficient were the magnets in preventing tramp iron damage, thus saving thousands of dollars, that when the company recently installed new machinery, it would not use it until Eriez Permanent Magnets had been added.

ERIEZ MAGNET IS WATCHDOG FOR THIS FLOCK. Cellusuede Products, Inc., Rockford, Ill., manufacturer of rayon, cotton and hair flock, protects its reputation and costly cutting knives with an Eriez Plate Magnet that pulls dangerous tramp iron from the raw material before it reaches the knife blades. The finished flock, used as a coating material for textiles, paper, metals, etc., and as a reinforcing material to strengthen rubber and plastic compositions, *must* be entirely free of metal contamination. Since installing the magnet, there has been no trace of stray metal, no damage to knives by tramp iron.

Eriez, free booklet "Magnetic Ideas" can help you. Send for it without obligation. Address: Eriez Manufacturing Company, 101S Magnet Drive, Erie, Pa. Or, on your specific request Eriez' factory-trained field men backed by Eriez' laboratory and engineering know-how will be happy to study your particular problem, make a plant survey and offer helpful "Magnetic Ideas".



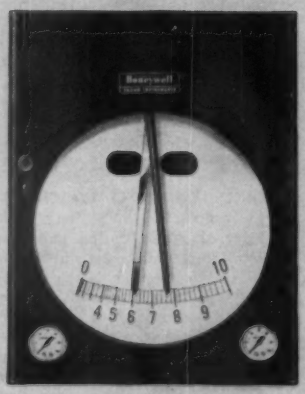
ElectroniK **CIRCULAR CHART FLOW METER**—indicates, records, integrates, and controls with extremely high accuracy and speed of response.



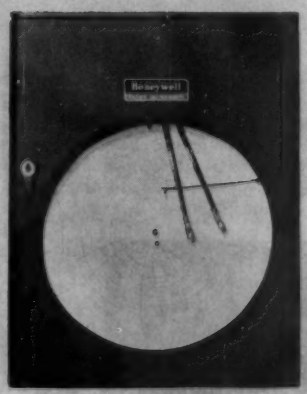
TEL-O-SET RECORDER—operates with any pneumatic transmitter. For graphic panels or limited panel space.

Accurate
begins with

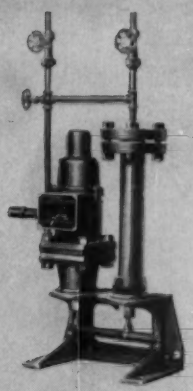
DIFFERENTIAL CONVERTER—mercuryless pneumatic flow transmitter with infinitely adjustable range.



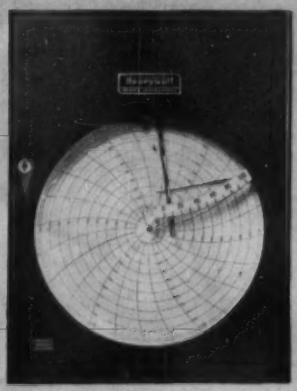
FLOW INDICATOR—used where no chart record is required but where constant indication and control of flow is needed.



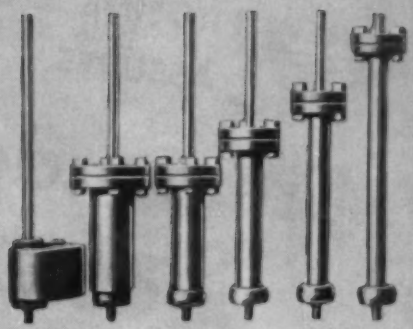
TWO-PEN RECORDER—simultaneously charts two process flows.



ELECTRIC METER BODY—for measuring flow of most fluids . . . electrical transmission.



LINEAR SCALE METERS—mechanical and electrical types, all control forms.



INTERCHANGEABLE RANGE TUBES—and interrelated charts permit you to change any flow meter to any range without disturbing orifice connections.

Cost Accounting . . .

HONEYWELL flow meters

What is the cost of process flows in your washers . . . J boxes . . . saturators . . . dye rooms . . . finishing operations? You must have accurate records of the quantities of steam, water, air, fuel oil and other fluids supplied to each department—for correct cost accounting and proper allocation of costs among departments.

Honeywell Flow Meters aid such accounting by providing:

1. Constant computing of flows at given locations, permitting accurate assignment of costs.
2. A means of establishing accurate basis costs.
3. A close check on waste, steam and water savings.
4. Warning of abnormal conditions which, if unremedied, could cause a sharp rise in costs.

They provide continuous, accurate flow measurement and fast, precise electronic integration. All instruments are designed to withstand severe industrial conditions, and require a minimum of maintenance.

You can depend on Honeywell's instrument service organization—the world's largest—for expert periodic preventive maintenance or emergency service.

Call your nearby Honeywell sales engineer for details. He's as near as your phone.

MINNEAPOLIS-HONEYWELL REGULATOR CO., *Industrial Division*, Wayne and Windrim Avenues, Philadelphia 44, Pa.—in Canada, Toronto 17, Ontario.

H HONEYWELL

MINNEAPOLIS **Honeywell**

BROWN INSTRUMENTS

First in Controls

PROFINE Special Paste—newest development in the Profine line—once and for all licks one of the biggest problems in the textile industry.

It provides maximum scorch resistance in finished fabrics during high temperature drying, curing, setting, calendering and other processes.

And in addition, this remarkable finishing agent has every other property you need to soften, lubricate, top dress or otherwise process any type of fibre or fabric! Profine has excellent antistatic properties . . . it will not affect the shade or light fastness of dyed goods . . . it keeps whites white . . . it *is resistant* to oxidation and rancidity.

Profine comes in easy-to-use paste form and is quickly dispersible in warm water. Wherever and whenever a finishing agent is required in processing textiles, Profine will do a better job for you. We suggest you give it a trial and see for yourself.

. . . the trouble-free finishing agent

Procter & Gamble Textile Finishes Sales Dept., Gwynne Building, Cincinnati 2, Ohio

MAKERS OF OLATE, PROXOL, KYRO AND ORVUS PRODUCTS

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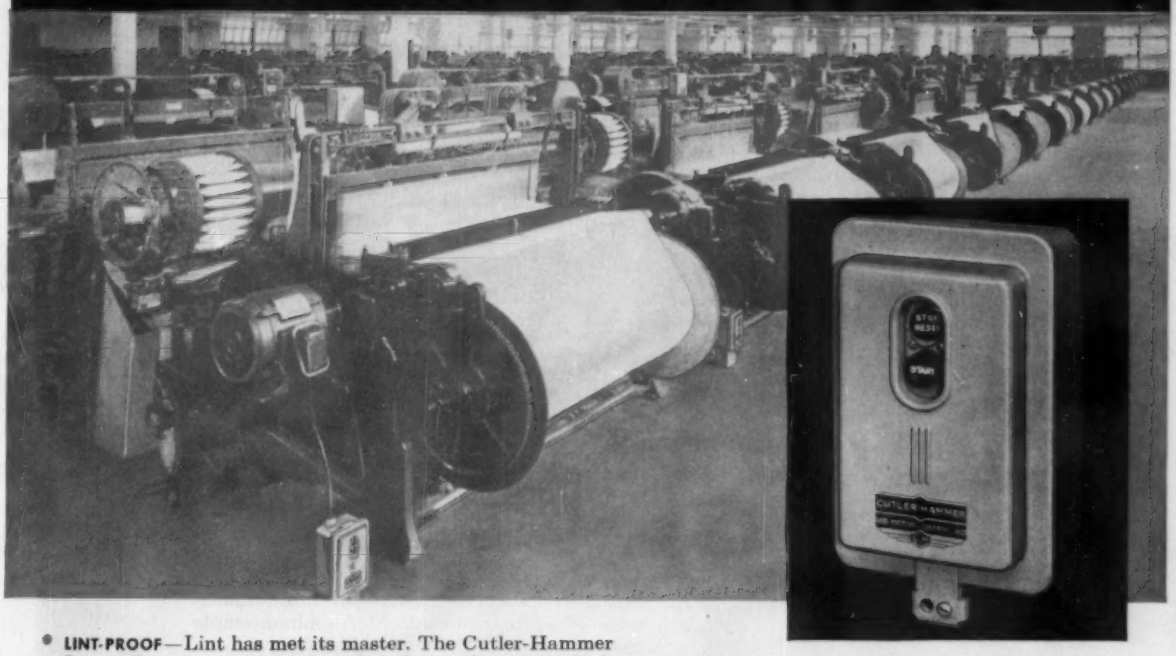
KEEP YOUR LOOMS WEAVING with the DEPENDABLE CUTLER-HAMMER LOOM SWITCH



- **LINT-PROOF**
- **DEPENDABLE OVERLOAD PROTECTION**
- **SHOCK & VIBRATION PROOF**
- **EASIER INSTALLATION & INSPECTION**
- **RESISTS CORROSION**
- **HIGH-BACK STEEL PEDESTAL**

- **LINT-PROOF**—Lint has met its master. The Cutler-Hammer Loom Switch has a triple-gasketed switch cover which clamps securely to the case and is drawn tight with a single captive cover screw.

- **DEPENDABLE OVERLOAD PROTECTION**—Stop costly motor burnout. The famous Cutler-Hammer eutectic alloy overload relay is free-tripping, tamper-proof and will work the loom motor at top efficiency . . . safely. No nuisance tripping.

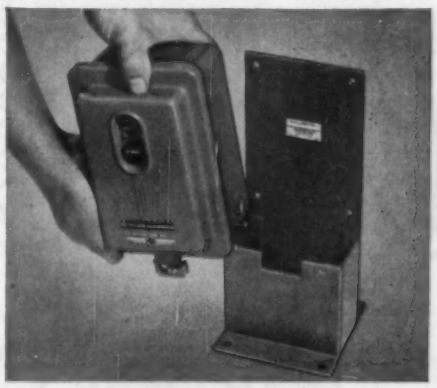
- **SHOCK & VIBRATION PROOF**—The Cutler-Hammer Loom Switch is built to take it. The switch mechanism floats on live rubber bushings, sparing the mechanism from impact shocks and machine vibrations. A steel framework supports the all-steel operating mechanism . . . all enclosed in a tough, drawn steel case and cover.

- **EASIER INSTALLATION & INSPECTION**—Loosening a single captive cover screw separates the cover from the case for complete wiring freedom. All terminals are out-front where you can get at them, and are clearly marked for rapid identification and positive wiring. Heater coils are easily inserted and marked for accurate selection.

- **RESISTS CORROSION**—The Cutler-Hammer Loom Switch uses plated steel members and springs of stainless steel to resist corrosion. The case and cover are bonderized, assuring a life-time of rust resistance even in the high temperature and humidity of the weave room.

For complete information see your authorized Cutler-Hammer Distributor or write on your company letterhead for Pub. EL-115, Cutler-Hammer Motor Control for Textile Machines. CUTLER-HAMMER, Inc., 1457 St. Paul Avenue, Milwaukee 1, Wisconsin.

CUTLER-HAMMER
MOTOR CONTROL
C-H



- **HIGH-BACK STEEL PEDESTAL**—This high-back, steel pedestal provides a solid foundation for floor mounted loom switch . . . it supports the switch from top to bottom, not just at the bottom. Being made of steel (not cast iron) it won't crack off when accidentally struck by a warp truck or kicked.

For more data, write this page number on Reader-Service card. →

THANKS

For Your Enthusiastic Reception of

THE FIRST WORKABLE
(Permanent Crimp)
METALLIC STAPLE
(Patent Applied for)

Designers are acclaiming the sparkling 3-dimensional effect this new Reynolds Aluminum staple gives to fabrics. They say it opens new vistas... offers fresh inspiration for coming lines.

- *Fine Crimp, Permanent—Completely Practical.*
- *Blends with Cotton, Wool, or Synthetics.*
- *Broad Scope of Design—Usable in any Proportion of Aluminum Yarn to Other Yarns.*
- *Two Types—With Aluminized Mylar* and Foil-and-Mylar.*
- *Silver, Gold and a Wide Range of Lustrous Colors.*
- *Available in fiber fineness from 1/100" to 1/220".*
- *All usual staple lengths—to meet your requirements.*

Reynolds is a leading supplier of Continuous Filament Aluminum Yarn, Aluminized Mylar Yarn and Foil-and-Mylar Yarn. Call any Reynolds Sales Office or write to Reynolds Metals Company, General Sales Office, Louisville 1, Ky.

**DuPont Trademark for its Polyester Film*

Reynolds Aluminum Yarn

See "Circus Boy", Sundays, NBC-TV.

THE GLAMOUR GLEAM IN FINE FABRICS

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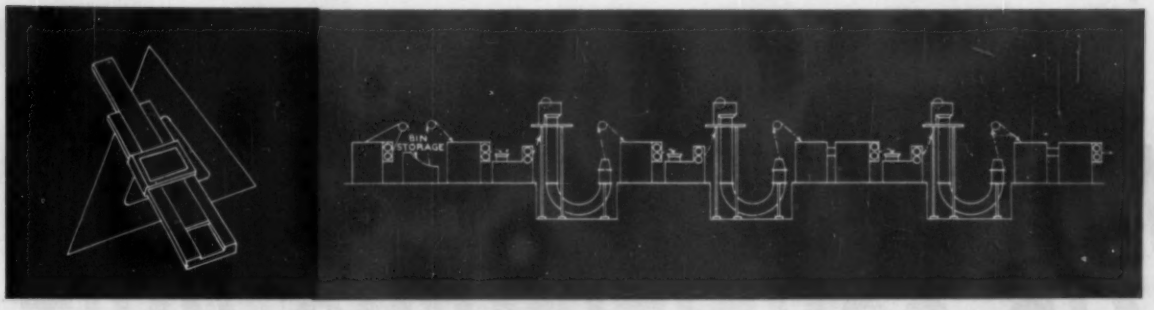

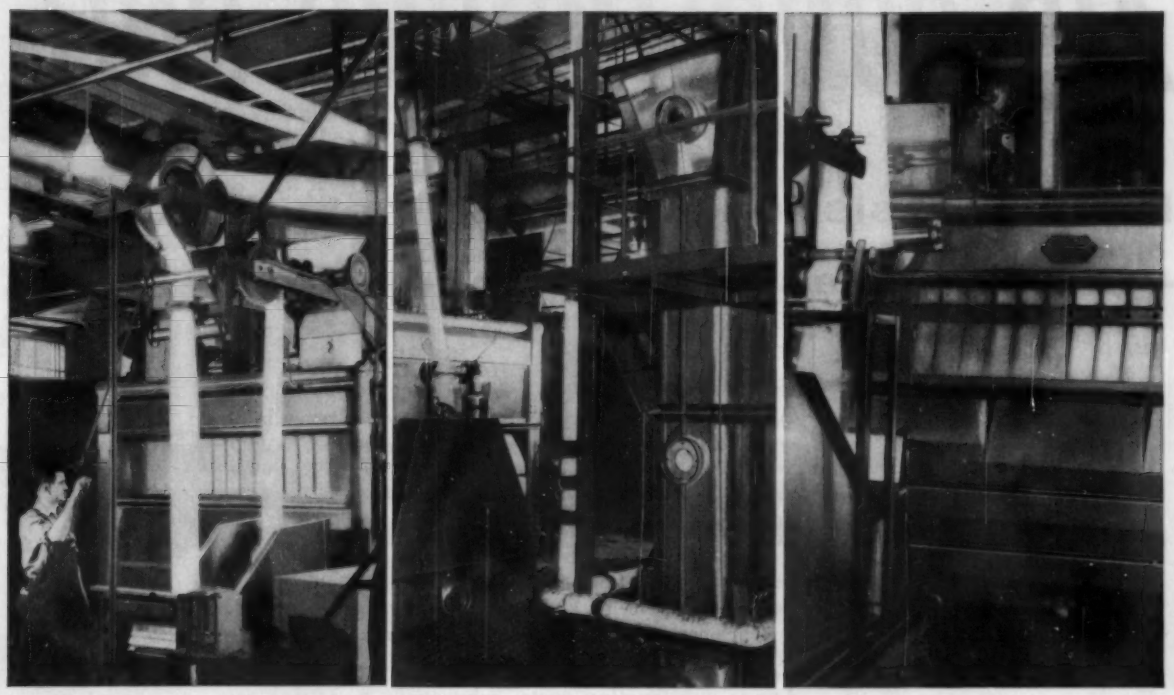

Brighter profits in Continuous Bleaching

With push-button automation, more than 400,000 yards of cotton per day are run 2-ply single rope through the 4-stage continuous bleaching range at Dominion Textile Ltd., without sacrificing whiteness, fiber strength, appearance, hand or elasticity. This is the sort of production that brightens profits in continuous bleaching.

Rodney Hunt engineers worked closely with Dominion Textile and Becco in designing the range to meet these production requirements. This installation, including the notably efficient Tensitrol® washers, saturators, J-Boxes and auxiliary units, is engineered and constructed to withstand high speeds under continuous operation with minimum downtime.

Rodney Hunt manufactures bleaching ranges and Rangettes® in both Becco and DuPont types. The Rangette, single or two-stage, was developed to run at speeds of 100 ypm, as a complete unit or in conjunction with high-speed equipment.

We invite you to write for literature describing Rodney Hunt wet finishing equipment.

RODNEY HUNT MACHINE CO.
Textile Machinery Division
66 Mill Street, Orange, Massachusetts, U.S.A.

RODNEY® HUNT

SERVING THE TEXTILE INDUSTRY WITH EQUIPMENT AND ENGINEERING

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NOT JUST A NEW AIR CONDITIONING UNIT

but the basis for an entirely new system —Carrier Rotaspray Weathermaker!

Again, from Carrier, comes another major advance in air conditioning. Far more than a new unit, the Carrier high-velocity Rotaspray Weathermaker* introduces a revolutionary new system for humidifying, dehumidifying, air cleaning and precise control of temperature and humidity.

Saturation and control of air at the higher velocity used in this major development represent a long sought-for engineering achievement. Field-tested for more than a year, the system offers proved advantages to new and existing mills. For example:

Lower construction costs—substantially lower than conventional systems because need for an apparatus tower is eliminated. The new Rotaspray Weathermaker is small, compact, light. Can be hung from the ceiling, put outside on the roof or suspended outside on the wall.

Lower maintenance costs—substantially lower than conventional systems. The new Rotaspray Weathermaker, equipped with "Cant-Clog" nozzles, is self-cleaning. Needs no air filters. Requires no recirculating pumps. Uses a centrally located water make-up tank and lint strainer and a specially designed axial-flow fan.

Lower operating weight, less space—substantially lighter and more compact than conventional units. See diagram for comparison.

Besides these advantages, the new Carrier high-velocity Rotaspray Weathermaker provides superior control of conditions and greater flexibility to meet load variations and revised arrangements of production machinery. In 4 sizes with capacities from 10,500 cfm to 30,000 cfm, and up to 115 tons. For complete details, call your nearest Carrier office. Or write Carrier Corporation, Syracuse, New York.

Carrier air conditioning · refrigeration · industrial heating

*Reg. U.S. Pat. Off.

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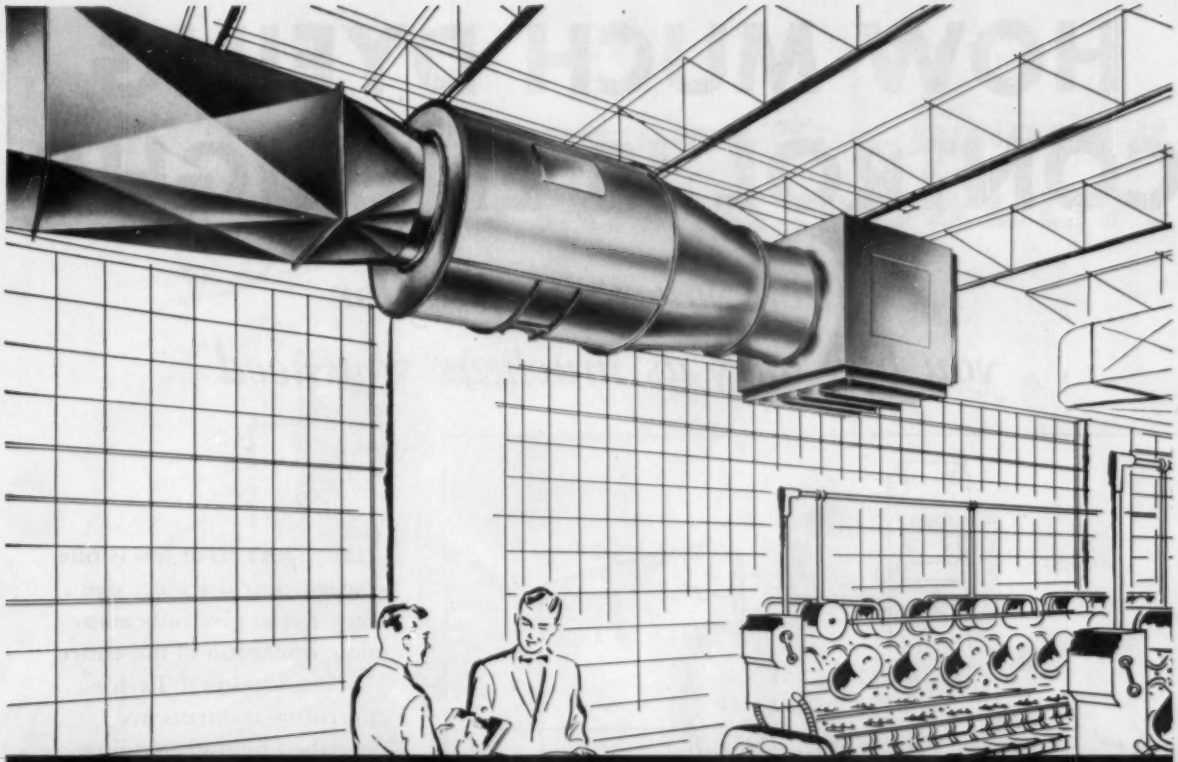
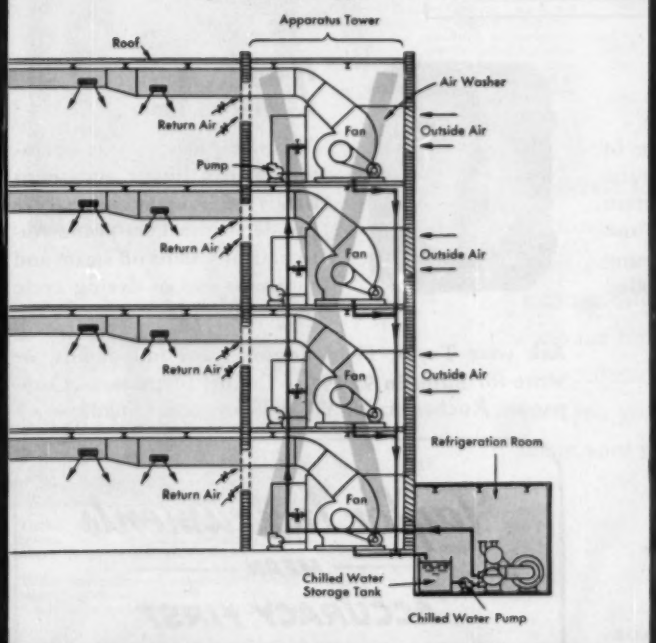
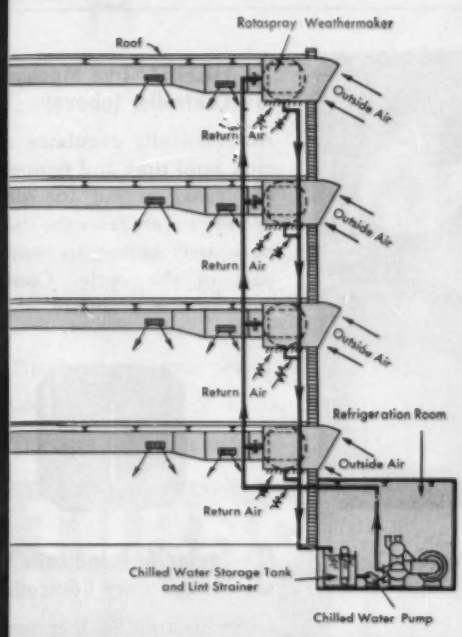


LOOK HOW THE CARRIER ROTASPRAY WEATHERMAKER SYSTEM ELIMINATES THE NEED FOR AN APPARATUS TOWER

Conventional Central Station System with apparatus tower



New Carrier Rotaspray System without apparatus tower



In addition to doing away with the need for an apparatus tower, the Carrier high-velocity Rotaspray Weathermaker System substantially lowers maintenance costs. It also has a lower operating weight and occupies less space than conventional systems.

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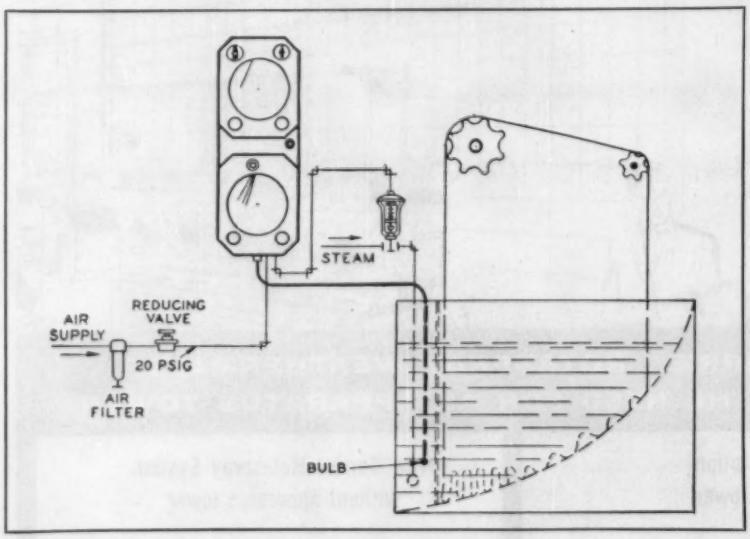
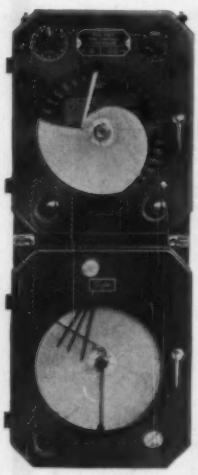
HOW MUCH DYEING CONTROL IS ENOUGH?

When you specify Taylor you buy only as much as you need



ILLUSTRATED at left is one way to control a piece dye machine, to give fully automatic operation of the entire process. Optional Taylor control instruments are described below, enabling you to buy as much control as your type of processing demands.

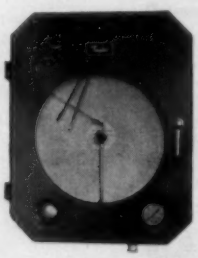


1. FULFLEX* Dye Machine Controller (above)

Automatically regulates rate of rise, hold time and temperature. No cams to cut for different cycles . . . just reset the dials and push start button to repeat any part of the cycle. Controlled cooling also available.

3. Taylor 86R Indicating Temperature Controller

Gives accurate temperature control automatically, wherever set point is set.



2. FULSCOPE* Process Timer

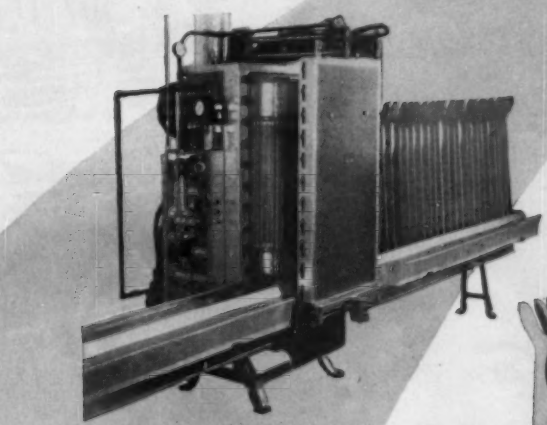
Accurately maintains temperature of dye liquor and times the dyeing cycle after it reaches pre-determined set point. Automatically shuts off steam and indicates end of dyeing cycle by signal light.

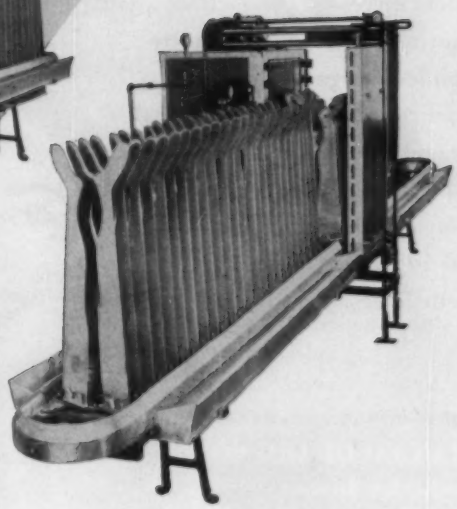
Ask your Taylor Field Engineer for full details, or write for **Bulletin 98199.** Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada.

Taylor Instruments
MEAN
ACCURACY FIRST
VISION · INGENUITY · DEPENDABILITY

*Trade-Mark

. . . because Turbo does it AUTOMATICALLY!

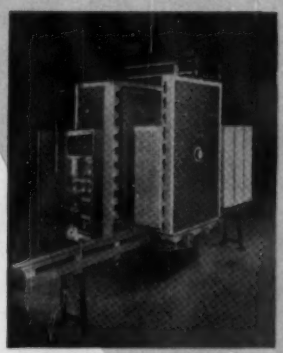




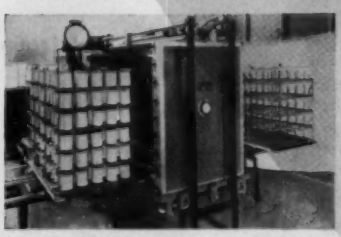
Above: Turbo ADS-48 Combination Preboarder/Finish Boarder, a single operator machine with 48 forms.

Right: Turbo ADS-96 Combination Preboarder/Finish Boarder, a two operator, double track machine with 96 forms . . . does the work of two preboarders and two finish boarders.

These hosiery setting machines with 4-cycle operation (preheating — air expulsion — steaming — drying) are designed for complete control of finishing according to the after-dyeing method of plasticizing all types of hosiery or garments.



Turbo FS-60 Fiber and Yarn Setter



Turbo FS-300 combination all-purpose Steam Setter adaptable to setting yarns, fibers, sweaters and other fabrics.

Turbo Setters feature automatic controls to assure high-quality results with every load. Available in stock machines or built to order.

Wherever setting is part of the finishing operation — stretch stockings, seamless and full-fashioned, men's and children's socks, panties, briefs, sweaters, fabrics, yarns — Turbo does it automatically. There is nothing for the operator to do except dress the forms, or load the carriers. Production is increased, costs reduced. That's why you see new Turbo machines wherever you go. Ask for the 12-page Turbo catalog or write us about your special setting problem.

TURBO
SINCE 1929

TURBO MACHINE COMPANY

LANSDALE, PA.

"Builders of Precision Machines for a Quarter Century"

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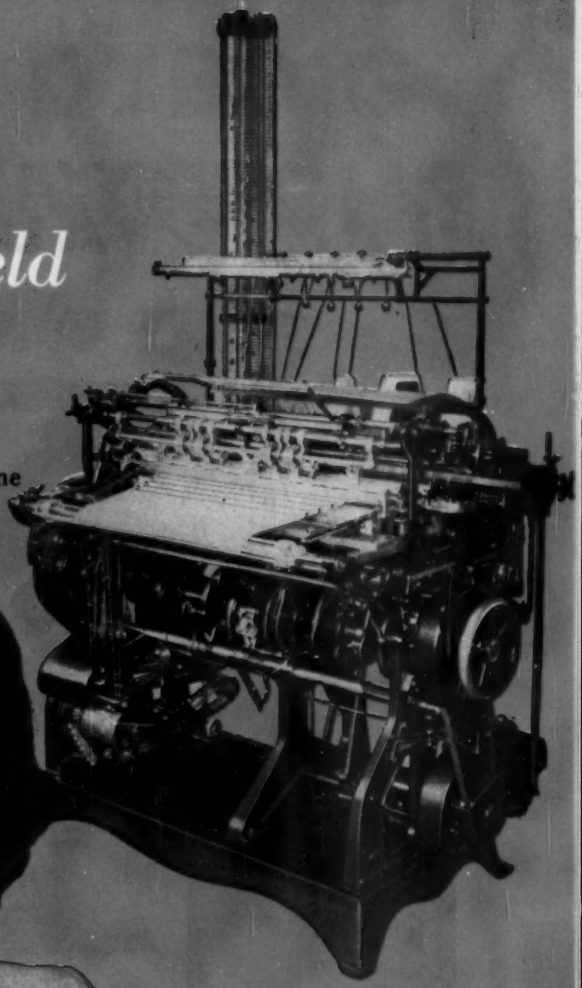
A FIRST in the FULL FASHION Field ... TFS

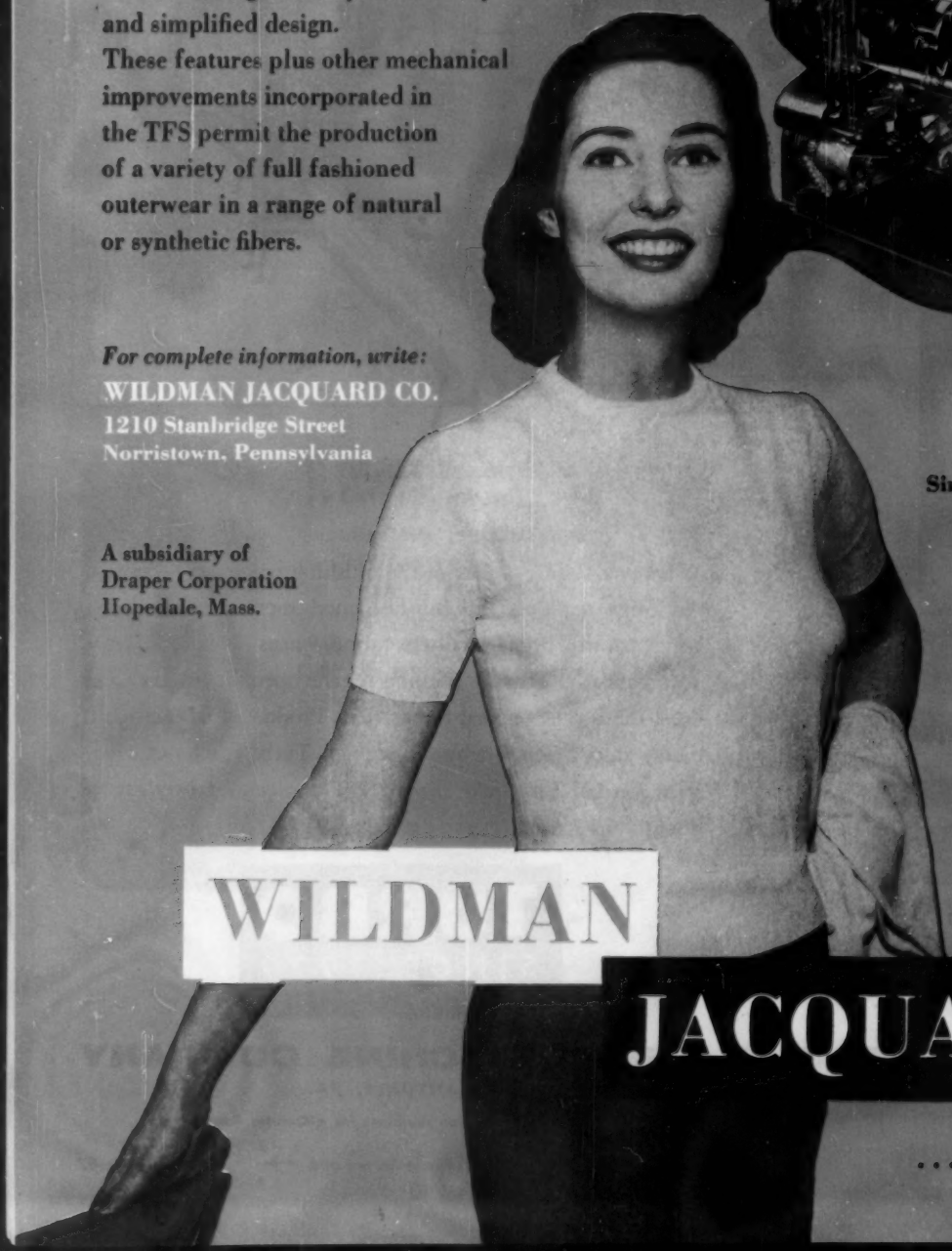


The Wildman Jacquard, TFS is a versatile knitting machine which offers increased production, quality fabrics, lower knitting costs, style versatility and simplified design.
These features plus other mechanical improvements incorporated in the TFS permit the production of a variety of full fashioned outerwear in a range of natural or synthetic fibers.

For complete information, write:
WILDMAN JACQUARD CO.
1210 Stanbridge Street
Norristown, Pennsylvania

Single Section — TFS

A subsidiary of
Draper Corporation
Hopedale, Mass.



WILDMAN JACQUARD

... Leading manufacturers of quality knitting machinery

Mills That Run at a Loss

The current letdown in business is emphasizing once more an old shortcoming of textile-mill management. In a nutshell: Some textile men do not understand basic business and economic laws well enough to know when they are losing money and when they are not. As a result, much of their production is excess production that hurts both themselves and the rest of the industry.

The trouble comes from the fact that some textile men have the notion that they are losing money only when working capital is reduced. So long as an operating loss can be wiped out by depreciation credit on tax returns, it is not considered a loss.

Here's how the thinking goes: Suppose Mill A has working capital of $100,000 and its actual mill operations last year resulted in a loss of $50,000, but for tax purposes the mill can take $50,000 credit for depreciation of buildings and equipment. It would balance the operating loss against the depreciation credit and consider that it broke even for the year because its working capital remained the same.

Error in Thinking

The error in this thinking is so obvious that it is hard to believe that mill men really accept it even when they give it as an excuse for continuing to run.

There is no difference between that example and this one: A taxi driver who owns his own taxi starts his day with working capital of $10 for making change, buying gas, etc. At the end of the day he has actually lost $3; but because he can take $3 a day depreciation on his car, he considers that he broke even for the day.

The fallacy in both cases is that investment money was lost. In the case of the mill, $50,000 worth of machine and building life were eaten up. In the case of the taxi driver, $3 worth of automobile life was used up.

Sooner or later both the mill and the taxi driver will have to replace their worn-out machinery. If the machinery has not paid for itself, it would be silly to stay in business.

Much Damage Is Done

Every mill man knows that overproduction is the big bugaboo of the textile industry. The prices mills get for their goods depend on one thing: supply. And there has never been a serious, sustained slump in prices that was not caused by mills themselves through overproducing for the available market.

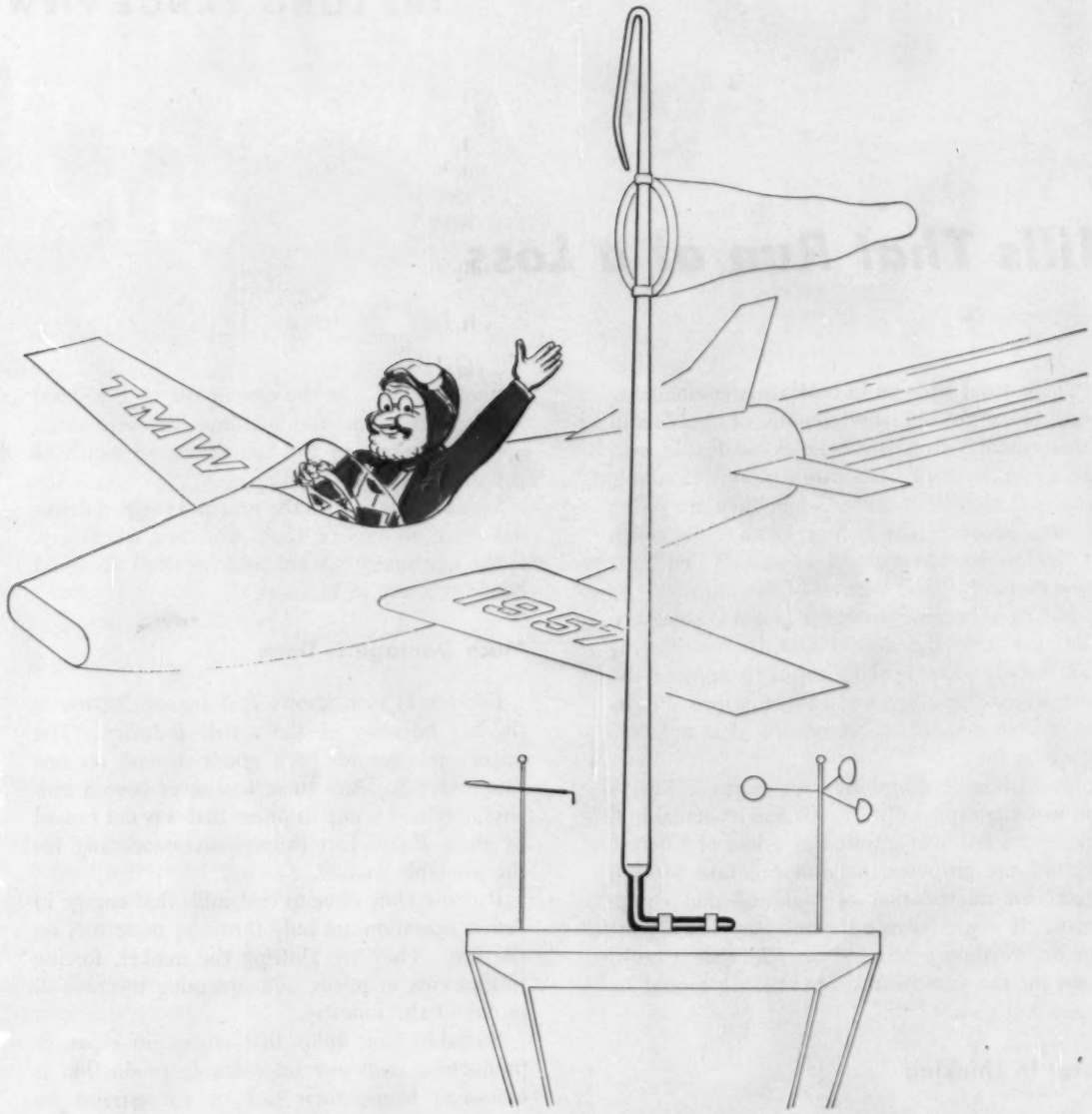
It is therefore obvious that mills that engage in deficit operation are only throwing more fuel on the fire. They are glutting the market, forcing further cuts in prices, and squeezing the over-all profits of the industry.

Probably most mills that engage in excessive production (and any unprofitable production is excessive) blame their lack of self-restraint on someone else and excuse it with one or another piece of faulty reasoning. But the truth is that operating at a loss is dead loss, no matter how a mill tries to cover it up.

It will be a good day for the whole textile industry when deficit operators and excessive producers learn and observe a few elementary facts of business.

D. M. Thomas

Nearly every competitive advantage starts with the machine



Builders of:

The "Reading" CK-A
Circular Knitting Machine

The "Reading" Tricot Machine

The "Reading 100"
Full-Fashioned Knitting Machine

The "Reading" Full-Fashioned
Outerwear Machine

The "Reading" Braiding Machine

Textile Spring-Beard Needles

Arrow Latch Needles

Forecasting Favorable Winds

There's profit ahead for the mill that standardizes on Textile Spring-Beard Needles. For lower production costs and better fabrics, there's no substitute for needle uniformity — in dimension, toughness, hardness, and resiliency. So for better profits use Textile Needles, Flat Stock and Leaded Assemblies. You'll *see* the difference!

Textile SPRING-BEARD NEEDLES

Wire Products Division
TEXTILE MACHINE WORKS • READING • PENNA.
In the South: Asheboro, N.C. In the North: Manchester, N.H.
Builders of Textile Machinery Since 1900

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Can We Afford a $71.8 Billion Budget?

THE BUDGET submitted to Congress by President Eisenhower for the year beginning July 1 proposes federal spending of $71.8 billion. In only four years, three during World War II and one during the Korean War, has the government spent more. Under the proposed budget the government expects to collect $73.6 billion, mostly through individual and corporation income taxes.†

The principal reason for the size of the budget and for this year's increase is an expanding defense program. About 60% of all budget expenditures in the coming fiscal year will be for national security programs. Moreover, this area accounts for about 90% of the proposed increase in federal spending. In addition, as the chart shows, there are large expenditures proposed for purposes other than defense.

Continued budgets of this size, some contend, will lead to inflation and wreck our economy. It has been suggested that they might lead to "a depression that will curl your hair." Yet many insist that the budget, large as it is, still is inadequate in many respects — for defense, schools, agriculture, small business, health, research, indeed, for almost every activity in which the government has become involved.

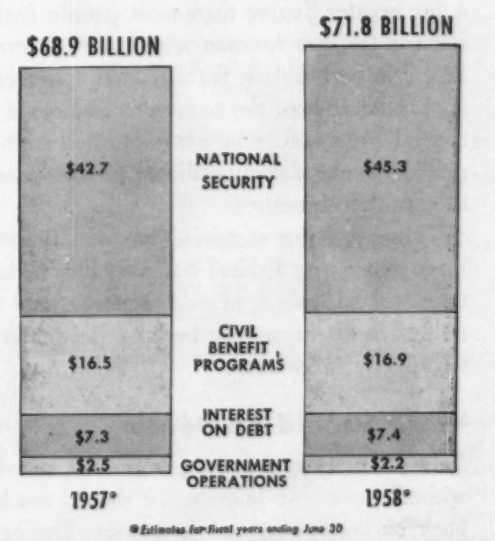
Is It Really Too Big?

Actually, the proposed budget would place no greater burden on the economy than any budget in the last six years, because our economy has been growing. Federal spending per capita under the proposed budget will be about $416, or $10 more than this year; but our per capita income rose almost $80 last year. And, because of our increasing population, next year's expenditures will, in fact, amount to *less* per capita than in 1954 when federal spending was $4 billion lower.

Another way of measuring the burden of government expenditures on the economy is to compare the purchases of goods and services of all branches of government — federal, state and local — with the total output of the nation. The share of our national product taken by government this year will be about the same as in the past two years and, furthermore, about the same as the average for the past 28 years.

By the standard of any recent year, the budget is within the means of the American economy. In this sense, we can "afford" it. But the pros-

†*These figures refer to the regular federal budget and do not include operations of trust funds, primarily for social security programs and the new federal aid program for highways, which are financed by special taxes.*



pect of steadily increasing budgets, requiring 20% or more of our national income, introduces another threat.

The Real Threat

Large and rising budgets that do not balance government spending with higher tax collections clearly would be inflationary and would destroy the value of the savings and income of all who lagged in the race with climbing prices. But serious dangers will still exist even if our budget continues to be balanced, as this year's is.

- **Budgets that require a large take in taxes eat up the savings required to finance private industry.** What the taxpayers must give the government they cannot save. This deprives private industry of the savings and resources needed to expand and modernize producing facilities.
- **High tax rates also undermine the incentive to save and invest in normal business enterprises by taking such a large share of any income gained.** Taxes on corporation income now take 52% of all income over $25,000. And taxes on individual incomes can take as much as 90% of earnings that remain after this 52% bite.
- **High taxes encourage, on the part of both individuals and corporations, the search for "gimmicks" and special treatment.** As a leading character in Cameron Hawley's novel *Executive Suite* observed: "To a far greater degree than most people realize, income tax has become a primary governing factor in corporation management." Indeed, it is only because of the numerous gimmicks and special provisions now available that high tax rates have not already inflicted greater damage to economic incentives.

These dangers comprise the real threat of large and rising federal budgets. It is a threat to continued growth of our economy, and it is no less a threat merely because the budget is technically in balance.

What Should Be Done?

In attempting to hold government spending within reasonable bounds, we should *not* hold back on needed civilian programs. The heavy demands now being urged at all levels of government for roads and schools, for instance, are largely the result of failure to keep pace with the growth of the country. Furthermore, we cannot cut provisions for national security below the minimum level of safety. And unhappily, defense in the rocket and missile age is fantastically and ever increasingly expensive.

What we *can* do is enforce some financial discipline on our military leaders, and hold down our defense expenditures by making sure their demands are justified and by requiring efficiency. In the civilian programs, though some need to be increased to serve a growing economy, we can eliminate the outright waste.

A More Difficult Job

We must also do something far more difficult, and that is to reduce federal programs of aid to special groups at the expense of all the taxpayers. The new budget calls for over $5 billion for veterans, and another $5 billion for farmers. A number of industries and areas stand to receive aid in large amounts based less on necessity than on political pressure. These demands for increased aid, year after year, must be resisted if we are to have any hope of stopping a relentless rise in our budget.

Then, as our national income increases, we can look forward to reducing tax rates and providing greater incentives for the private sector of the economy. **Only in this way — by keeping government spending in line with economic growth — can we prevent our federal budget from being a crippling burden.**

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nation-wide developments. Permission is freely extended to newspapers, groups or individuals to quote or reprint all or parts of the text.

Donald C. McGraw
PRESIDENT

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Textile World

Volume 107, No. 5. May, 1957

TEXTILE WORLD'S FORUM Discusses—

What OVERSEERS Expect of SECOND HANDS

- Four overseers, experienced supervisors in progressive textile mills, discussed the qualities needed in today's second hands at a forum arranged by TEXTILE WORLD.
- Here is a composite word picture of what the ideal second hand should, and should not, be.

A Second-Hand Should:	
Know the job	Have personal courage
Have a good personality	Be open-minded
Be a leader	Have a general education
Know how to instruct	Be enthusiastic
Like people	Cooperate with others

Second-Hand Failings Are:	
Inability to handle people	Faultfinding
Refusal to accept responsibility	Moral laxity
Inability to make decisions	Egotism
Failure to develop on the job	Favoritism on the job
Improper outside activities	Too argumentative

TEXTILE WORLD: In choosing a second hand, what qualities do you look for?

OVERSEER A: I think a second hand should have a good general knowledge of the job. He doesn't have to be an expert on every job under his supervision, but he should know how each job should be run. Then he should have the kind of personality that will enable him to approach people in the right way and get things done without causing misunderstanding and resentment.

OVERSEER B: A good personality is one of the most important qualifications for a second hand. If he doesn't have a personality that will make him stand out as a leader, we wouldn't want to take a chance in making a second hand of him.

TEXTILE WORLD: Then you think a second hand should be a leader, not a driver?

OVERSEER B: Yes, I do. There are times when he might have to push as well as pull, but I still think it is better to lead than to drive. Nowadays if people don't like you or don't like to do the job, it's almost impossible to get them to do it.

TEXTILE WORLD: Then you don't think a second hand can be a boss in the old way?

OVERSEER B: Well, he's got to be the boss to a certain extent. He has to issue orders and see that they are carried out. But he should make the person want to follow instructions, not feel that he is being forced to do something in a particular way.

OVERSEER C: On the topic of giving instructions, I think half a second hand's duties are giving instructions and the other half is seeing that the instructions are being followed. A man has not been properly instructed until he knows just

what he is to do. Therefore, one of the most important qualifications for a second hand is to be able to instruct clearly and make certain a person understands what he is to do.

A second hand should be able to get a person in the right frame of mind to be instructed. If a person is put at ease he is more likely to clearly understand what the second hand is telling him. And the chances are that he will follow the instructions better.

OVERSEER D: A second hand must like people. If he doesn't like people and like to deal with them, he'll never be a success on the job. He can be average in every way; but if he likes people and they like him, he can go to anybody on the job and get them to do whatever he wants done.

TEXTILE WORLD: Then you think a second hand must have a genuine liking for people before he can get people to like him?

OVERSEER D: Yes, and he can't fool people about that.

OVERSEER A: A second hand should have enough courage to walk up to a man and tell him what he wants to say. You can call it giving orders. He's got to be able to talk straight and not beat around the bush.

But I think a second hand should also be willing to listen to the person to whom he's giving instructions. He should keep an open mind even if he's talking to the lowest-paid man on the job. If he is wrong, he should be big enough to admit it and not try and be the big boss who is never wrong.

TEXTILE WORLD: After giving instructions, a second hand should encourage questions?

OVERSEER A: The first thing a second hand should do when he gives instructions, if it's something different from the usual routine, is to explain why the change is being made. If he just walks up to a person, gives an order, and walks away, he will be inviting a grievance.

TEXTILE WORLD: How much education do you think a second hand should have?

OVERSEER A: He should have enough education to do simple calculation. He doesn't have to be a mathematician, but he should be able to figure any change that comes up on his job. He should be able to understand how costs are figured. Also, he should be able to explain to any person how certain figures are arrived at in figuring jobloads.

TEXTILE WORLD: Then a second hand should be able to work out jobloads himself and not just use a lot of figures that he can't explain?

OVERSEER A: If a second hand tells a man that the standards department has figured his jobload, the man will probably ask how those fellows in an office somewhere can figure how much he can do. If the second hand can explain how the job was figured, he can sell the man on the change a lot better and quicker.

OVERSEER B: A second hand should have enough education to perform his duties or be willing to learn. I've known men who had the other qualifications and then learned a lot after they were promoted. Education is needed on any job, and I don't think a man can have too much of the right kind of education.

OVERSEER C: There are many kinds of education. In addition to formal education, there's the kind you dig out for yourself. Most of our second hands are self-educated to a certain extent. They find out what is required on the job and then learn it.

But I'd like to add this: education will not run a job. It's just a start, and education alone shouldn't be the sole requirement for promotion to a second hand's job.

The second hand who has enthusiasm can overcome many obstacles. If a second hand can't tackle everything about the job with enthusiasm, he just isn't the man for the job.

He must also be curious about the job, always looking for new machine settings and new methods that will get the job done quicker, better, and at less cost. He must be cooperative with the second hands on the other shifts and with the supervisors of other departments.

TEXTILE WORLD: Then regardless of his education and training, a second hand should have an open mind and be always willing to learn?

OVERSEER C: With present-day methods of setting looms, having quality-control and standards departments, a second hand can't be an expert in all phases of the job. But he can learn what is needed to use these modern methods. He also needs to have some common horse sense to go along with his knowledge.

TEXTILE WORLD: Are there other qualities a second hand should have?

OVERSEER C: A second hand should be loyal to his company. If he doesn't think that he

is working for the best company in the business, he can't perform as he should. He should not be afraid to disagree with his overseer, but he should not make an issue of it.

TEXTILE WORLD: How far should a second hand go on a controversial subject before he admits that the overseer is right, even though he still thinks that he is right?

OVERSEER A: The overseer is responsible for the department, and the second hand should try and do things the way the overseer wants them done. If the overseer gives an order and the second hand thinks it is not right, they should go over the question in the office. If the overseer won't change, then the second hand should accept the order and pass it on to the employees.

TEXTILE WORLD: When he disagrees with an order or instruction, how should a second hand relay it to his employees?

OVERSEER A: He should give it as a personal order or instruction and not try to pass the buck. Any disagreement between the second hand and overseer should be in private. The second hand cannot be loyal to his overseer and his company if he continues to disagree on a subject after it has been discussed and adopted.

TEXTILE WORLD: The three components of a job are given as men, machines and materials. Percentagewise, how much ability should a second hand have for each of these three components?

OVERSEER D: At least 50% of a second hand's abilities should be in handling people; 25%, or a little more, machines; and up to 25%, materials.

OVERSEER A: I would say that up to 70% of a second hand's ability should be in handling people and the balance split equally between machines and materials.

A man who can deal with people can hire a man to run a machine. If the second hand just barely knows enough about the machine to tell if it's running right or not, he can get results if he can handle the man who runs the machine. But he's got to know people up one side and down the other to get results because he is dependent on them to get things done.

OVERSEER B: I'd say 50% or more of a second hand's ability should be in handling people. If he knows his people, how to select and train them, he won't need to know everything about machines and materials. But a man should learn all he can about all elements of the job.

OVERSEER C: There are men who stay in the ranks because they can't get things done. Most of our loomfixers will always be little loomfixers; most of our weavers will always be weavers. It's not because of their lack of mechanical knowledge but because they cannot successfully deal with other people. I'd say a breakdown of 75% men, 12½% machines, and 12½% materials would be about right.

TEXTILE WORLD: Why do some men fail after being promoted to second hand?

OVERSEER A: Most of them fail because they do not know their people and spend too much time looking for faults. Most of the unsuccessful second hands want the people working under their supervision to know that they are the boss. They stress the fact that they have a better position and want people to look up to them.

TEXTILE WORLD: Do you think being promoted to second hand changes a man's personality?

OVERSEER C: It does change a man to a certain extent. If a man has the ability, it will change him so that he is better—people will like him more. But there are some men who let the promotion go to their heads. Most of them we can do something about, but sometimes you just have to take them off the job.

OVERSEER A: One place a second hand fails is in his inability to accept responsibility. Closely allied with this failure is his inability to make decisions. A lot of good supervisors have let their morals ruin them. These are three things that I think have caused most second hands to fail.

OVERSEER C: Very few second hands are taken off the job because of their lack of knowledge. That is pretty well established before they are put on the job. But they also have to develop themselves after they are promoted. Many of the second hands who fail do so because they don't have the ability to develop and apply what they learn.

When a second hand quits looking for ways to improve himself he is going backward; there's no such thing as standing still on a supervisory job. He should take advantage of any company training that is available, and he should read trade journals to find out what is happening in other mills. If he does not keep an open mind and keep looking for ways to improve himself, he will certainly fail.

TEXTILE WORLD: What other things cause second hands to fail?

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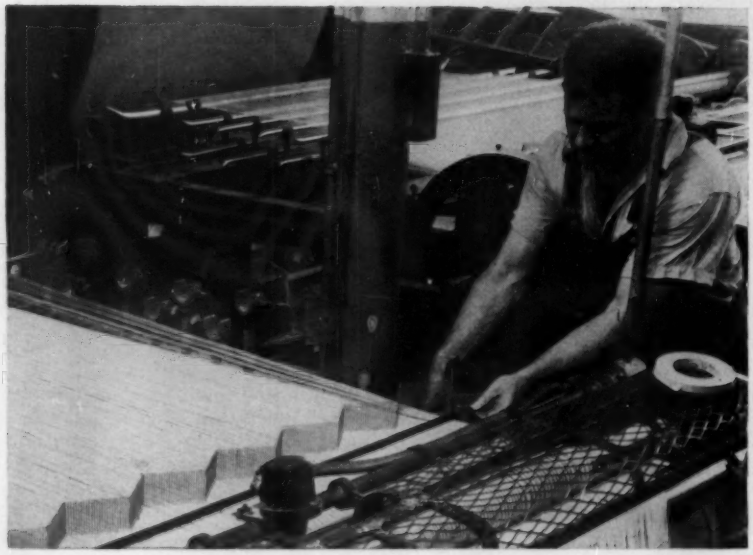
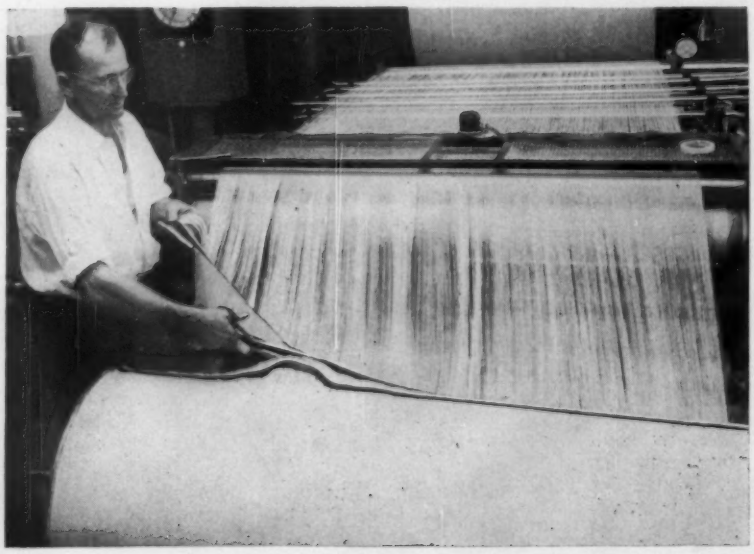


TAPE is placed on warp yarn in front of the slasher comb.

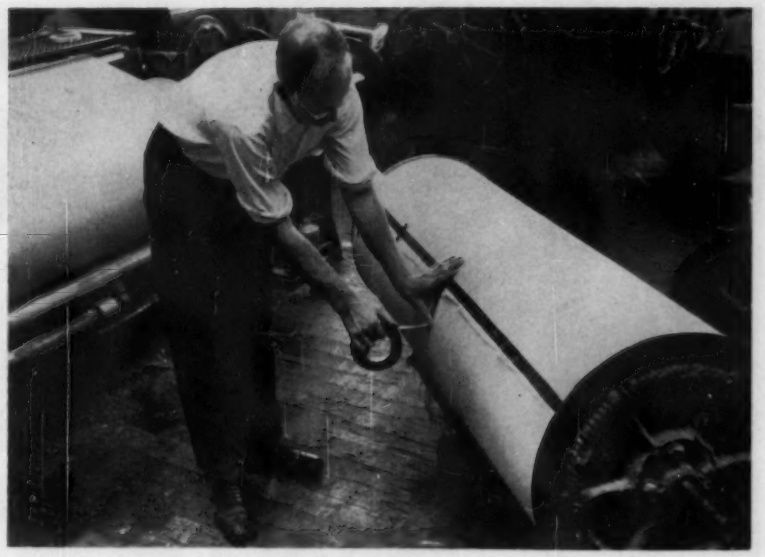
Scottdale Mills Improves Its SLASHING

• Scottdale Mills, Scottdale, Ga., has a versatile slasher room that is capable of sizing a wide range of warps. The operation has been made more efficient by the use of pressure-sensitive tape. Here's how it's done—

By **WILMER C. WESTBROOK,** Assistant Editor, TEXTILE WORLD



YARN is cut between the last two strips of tape.



STRIPS of tape hold cut end of yarn on the beam.

THE WEAVING OF DIVERSIFIED FABRICS requires a versatile slashing setup. The slasher room of Scottdale Mills, Scottdale, Ga., is adaptable to a wide range of yarns, beams, and size applications. Osnaburgs, corduroy, sateen, and miscellaneous industrial and domestic fabrics are woven at Scottdale.

The two slashers in use at the mill readily handle beams for looms of 40- to 66-in. width and beam heads of 18- to 26-in. dia. Yarn counts are 8s, 10s, 15s, 17s, and 30s. Number of ends per loom beam vary from 1,015 to 6,328.

One of the slashers has one 5-ft. and two 7-ft. drying cylinders. Made by Saco-Lowell Shops, the slasher has an 11-beam creel and a single size box. It has blanket-covered squeeze rolls and friction drive. This slasher operates at 20 to 40 yds. per min., depending on the type of yarn being sized.

The other slasher, made by West Point Foundry & Machine Co., has nine drying cans and a Westinghouse drive. This slasher has a 16-beam creel and will operate at speeds up to 100 yds. per min. Synthetic-covered squeeze rolls are used, and the pressure is controlled pneumatically.

Two Size Formulas Are Used

Both the slashers have Brown moisture controls and automatic size-level and temperature controls. Size pickup is 12 to 14%, depending on the type of yarn. Stretch is held between 1¼ and 1½% on the West Point slasher and under 2% on the Saco-Lowell slasher.

Two size formulas are used at Scottdale: one for osnaburg and the other for white stock. The size is prepared in stainless-steel kettles that hold 200 gals. of finished size each. The two stainless-steel storage kettles hold 275 gals. each. The size is held at a temperature of 204° F.

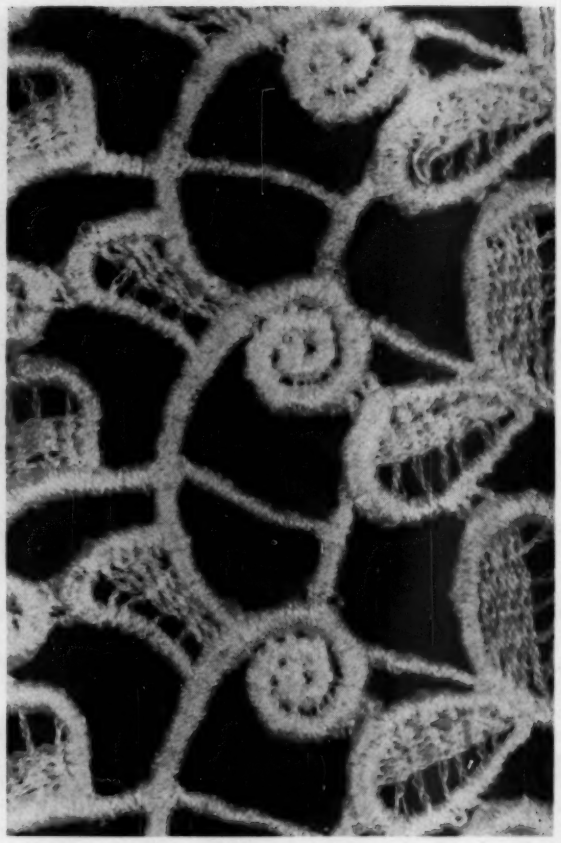
Full beams are doffed with the aid of a chain hoist and stored in three-deck racks located in both the slasher room and the weave room. An electric hoist mounted on a monorail is used in the storage area.

Pressure-sensitive tape is used at Scottdale to hold the warp ends

CONTINUED ON PAGE 206

TYING IN is made easier and waste reduced by taped warps.

BACKING FABRIC AND LACE look like this before processing. Caustic soda will dissolve the Solvotex and leave the lace unaffected.



ONLY THE LACE is left after the caustic-soda treatment has done its work. Large patterns like this are self-supporting and can be shipped as is.

How Londat Aetz Co. Produces SOLUBLE-COTTON *Fabrics*

Soluble-cotton fabrics that are used as backing in Schiffli laces are the specialty of Londat Aetz Fabric Co., Elizabeth, N. J. Chemical processing of common cheese cloth produces a fabric that is—

- Soluble in 8% caustic soda solutions
- Adequately strong for the purpose
- No more flammable than ordinary cotton

RESEARCH AND CONTROL are the keys to the production of soluble-cotton fabrics, according to Joseph Datlow, who heads Londat Aetz Fabric Co., Elizabeth, N. J.

Back in the middle 20's, the company depended on nitration of the cotton to get a fabric that was soluble in caustic soda. The nitration was controlled to a point well below complete substitution, but the product was extremely flammable.

Better knowledge of the structure of the cotton fiber and the development of new chemicals paved the way for the process that is now being used to produce alkali-soluble cotton.

Two Steps Required

The modification of the cotton, usually a cheese cloth, starts with a partial cyanoethylation. In this process, the goods are first impregnated with a 15% solution of caustic soda

in a unit similar to a log washer. The goods are in rope form, and several immersions and alternate squeezes between the top rolls of the units provide thorough saturation. The final liquor content is about 60% of the weight of the fabric.

The goods then pass into another treating unit of similar design and are impregnated with a mixture of acrylonitrile dissolved in carbon tetrachloride. The treating temperature is kept at 30° C., and the cloth is kept in the treating unit for about 5 mins.

An interesting feature of this processing step is that the economy of the process depends on the insolubility of carbon tetrachloride in water. The carbon tetrachloride-acrylonitrile solution lies at the bottom of the treating machine; and as the wet fabric from the causticizing operation passes through it, the solution is mixed mechanically with the water in the goods.

There is even a slight emulsifying effect caused by the action of the acrylonitrile with the caustic. But when the goods are squeezed between the top rolls of the impregnator, the emulsion is broken and only combined acrylonitile is retained. The excess carbon tetrachloride returns to the bottom of the system for reuse.

The final stages of the cyanoethylation process consist of neutralizing excess caustic and thorough washing in water to remove the by-products of neutralization.

The wet fabric is then put through a stainless-steel saturator similar to that used in the cyanoethylation process but carrying a solution of chromic acid in the lower portion. The acid concentration and the testing temperature may vary greatly depending on the exposure time. To get results in 30 secs. requires an acid concentration of 5%, applied at the boil. Londat Aetz finds that these conditions work well for continuous operation.

From the chromic-acid bath, the goods are led into an oxalic-acid bath, which immediately stops the oxidizing reaction. After passing through the oxalic-acid bath, the goods are run through an ammonia solution and then given a final wash in water.

The wet goods are then opened over a scutcher and dried on a conventional tenter.

Control Is Rigid

The process is tricky; it is easy to wind up with fabric that will not dissolve properly or that is too weak to be commercially useful. So each step of the cyanoethylation and the oxidizing treatment is constantly monitored throughout the run.

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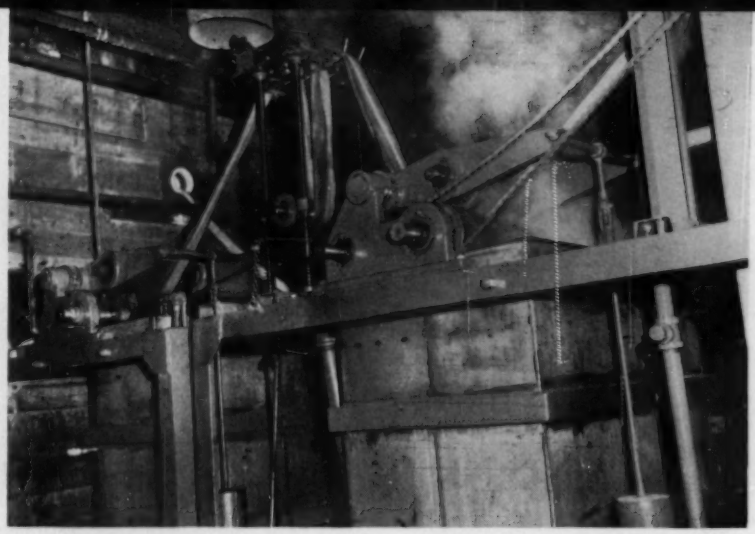
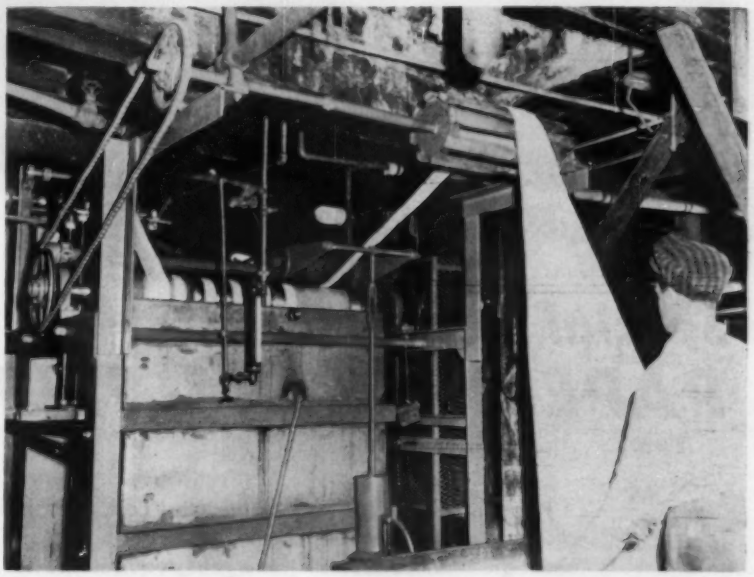
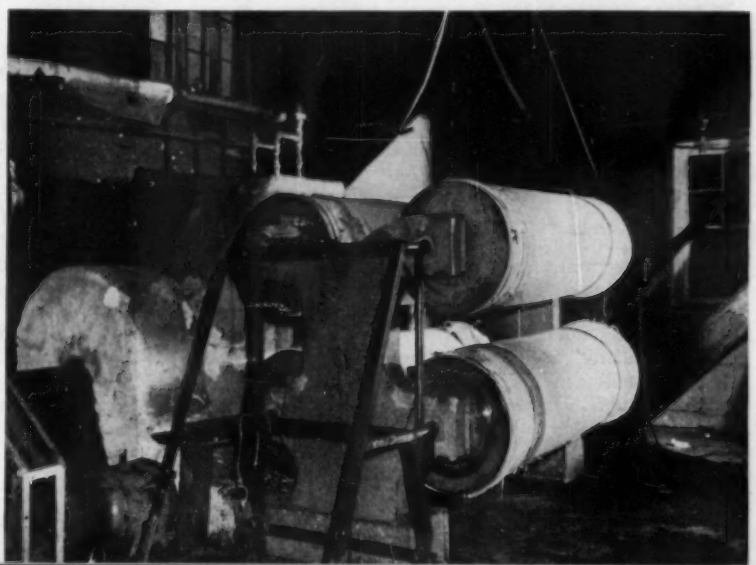


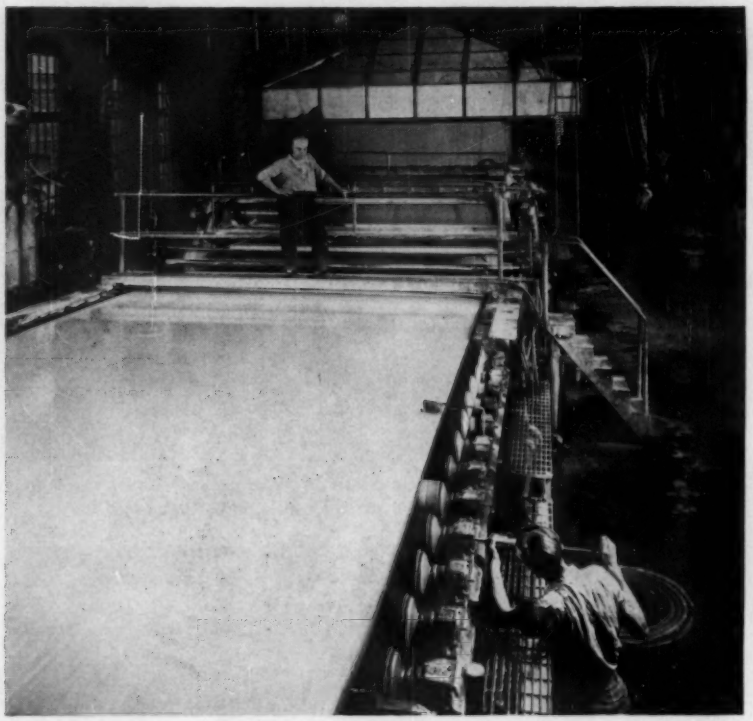
TREATING RANGE for the chromic-acid phase of the process consists of four units. In the foreground is the chromic-acid unit, receiving the pretreated fabric.



FINAL WASHING and delivery into a truck complete the treatment. Note Rotameter mounted on wash box, one of several used to check flow rate of treating solutions.

HOT-AIR DRYERS, designed at the plant, force hot air through the perforated cylinders on which the cloth is wrapped for dyeing and bleaching.





FELTS act as both a conveyor and a filter membrane as the pulp is formed into paper.

Special Report on— *PAPERMAKER'S FELT*

• Papermaker's felt is one of the most costly of all fabrics to produce. It is also one of the most highly specialized fabrics because it has only one end use. The manufacture of these felts requires special machinery and a high degree of skill at every process.

By WILMER C. WESTBROOK, Assistant Editor, TEXTILE WORLD

PAPERMAKER'S FELTS are enjoying a booming prosperity. The demand for the felts is proportional to the demand for paper; and papermaking is an expanding industry. Since the present and the future of the felts is allied with the production and consumption of paper, let's take a look at the paper industry:

Paper is the fifth ranking manufacturing industry in the United States, being surpassed only by motor vehicles, meat packing, steel works, and petroleum refining. The paper industry in the U. S. is 267 years old, the first mill being established near Philadelphia in 1690.

But it has been only a half century since a process was perfected for making paper from wood fibers. The number of mills and the use of paper has expanded rapidly following this discovery.

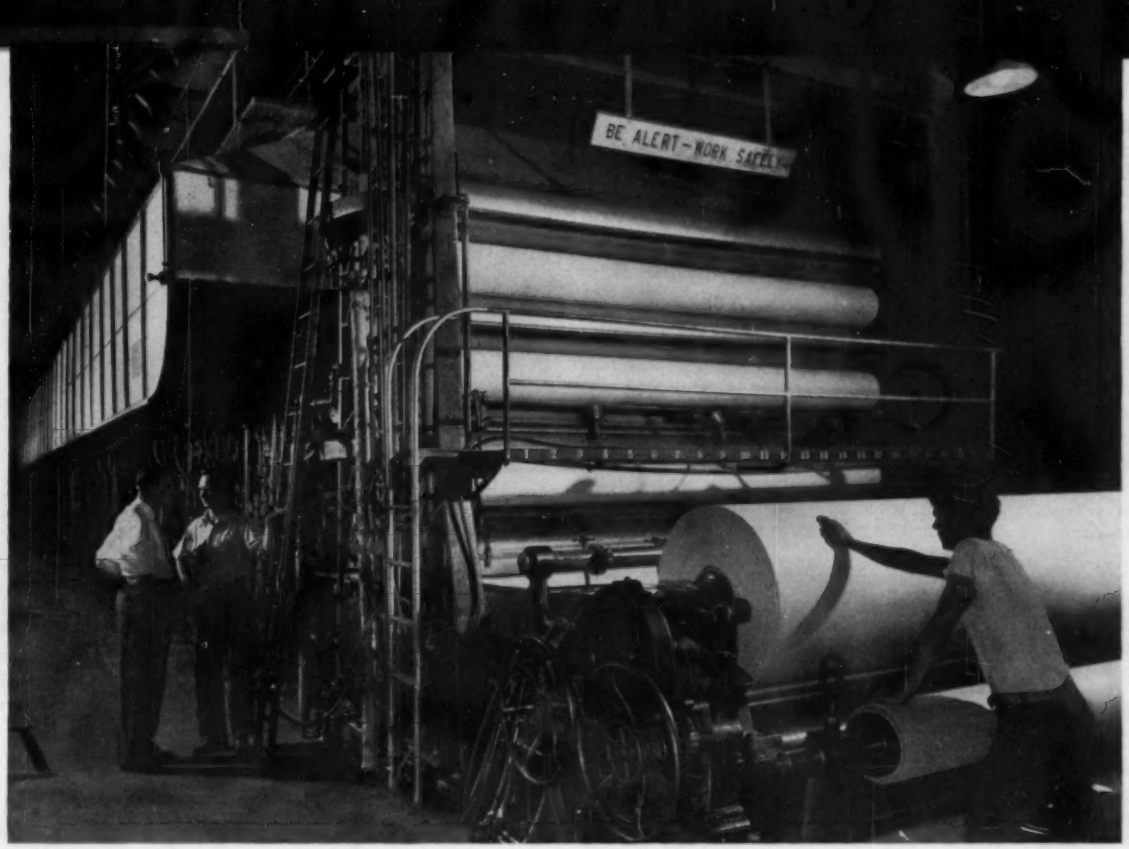
A process for making kraft paper from Southern pines has attracted many paper mills to the South in recent years. America's paper and pulp industry has increased its production 55% in the last decade, and expansion continues.

Demand for Paper Increases

There are 786 paper mills and 335 pulp mills, located in 488 towns and cities in 38 states. These mills represent an investment in property of more than $7-billion.

The future of the paper industry, unlike that of many others, is not limited by population increases. Domestic consumption of paper and paperboard is constantly increasing. In 1953, the last year for which accurate figures are available, the per-capita consumption of paper for selected countries was:

Country	Pounds
United States	391
Canada	250
Sweden	200
Great Britain	144



PAPER is supported by felts until it is dry and ready to come off the machine.

West Germany	95
France	73
Japan	44
Italy	32
Russia	15½
Brazil	15
Red China	1½
India	1½

It can be seen that there is a tremendous potential world market for paper and paper products in addition to expanded uses at home. New uses are constantly being found for paper; so its per-capita consumption is being boosted.

U. S. production of paper and paperboard was 29,850,000 tons in 1955, a 12% increase over 1954. Estimated production for 1956 is over 31-million tons.

Most Newsprint Is Imported

Of the more than 6-million tons of newsprint used in the United States in 1955, 78% was imported. This country produces only 22% of its needed newsprint and imports 76% from Canada, with the other 2% being imported from Scandinavian countries.

Incidentally, the newsprint comes into this country duty-free. But newsprint is still in short supply. It is rationed in Great Britain, and there will be an estimated 40,000-ton shortage in the U. S. this year.

So it can be seen that papermaker's felt is allied with a dynamic industry, an industry that is limited only by the vision and planning of its leaders.

How Felt Is Used

What is papermaker's felt? It is a very heavy, densely woven, felted cloth that acts as a transmission belt, a conveyor, and a filter membrane on a papermaking machine. The felt passes around rollers and conveys the wood pulp through pressure rolls that squeeze out the moisture and form the pulp into a continuous sheet of paper.

Each felt must be made to order because different machines and different kinds of paper and paperboard require felts with different characteristics. Wool is the accepted fiber for papermakers felts, although some synthetics such as nylon, Dacron, and saran are used in limited quantities.

Much Skill Is Needed

Dryer felts, used in the process after the paper is formed, are woven of cotton, asbestos, synthetics, or blends of various fibers. Regardless of the materials of which they are made, the felts must be flawless and made to exact specifications.

A woolen or worsted felt must be made twice as wide and twice as long as the finished size needed. After weaving, the felt is run through a fulling process that compresses and felts the cloth. A felt woven 200 ft. long and 180 ins. wide has a finished length of 100 ft. and is 90 ins. wide.

It can be seen that the making of felts is not a hit-or-miss proposition but demands close control and a high degree of skill at every process.

When an order is received for a felt of certain specifications and for a designated purpose, every step of manufacture is planned in advance. The kind of fiber, the type of yarn, the weave, the length and width of the woven felt to produce the finished size, the finished weight, the nap, and other details must be decided upon.

Some felts are woven endless; others, called flat felts, are spliced after weaving. This splice must be a flawless, invisible joint. Also, all knots, slubs, and other imperfections must be removed.

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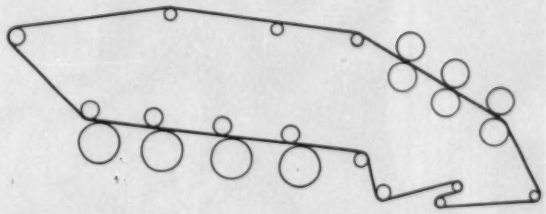
A felt must be of the correct length to fit over the rolls without excessive bag or stretch. The width must be sufficient to allow for any shrinkage caused by longitudinal stretch.

A felt must be strong enough to support the paper stock, have a finish that will not mar the paper, and yet be porous so that the water squeezed from the paper can be easily ejected through the felt.

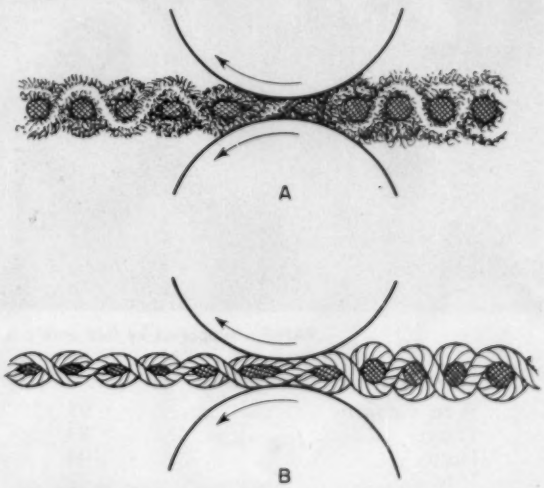
The price of a single felt may run into four figures; and it may have a serviceable life on the machine of ten days. But the output of the machine runs into hundreds of feet per minute; so the cost of the felts is a minor item in the papermaking process.

The practical limit in speed of a papermaking machine is said to have been reached. To produce more, the machines are therefore being made wider. Machines over 300 ins. wide are now being made.

As the papermaking machines become wider, they require wider felts. Looms 600 ins. wide are now in use. To meet the demands for wider felts, the Lockport Felt Co. has installed a 650-in. loom in its Starkville, Miss., plant.



FELT operates over, around, and between a series of rolls on the paper machine.



WOOL *(A)* springs back into shape after compression, a quality not found in some fibers *(B)*.

How Felt Is Made

Looms for weaving felts are enormous. Crompton & Knowles Corp. builds felt looms in the U.S. Hindle & Sons, Blackburn, England, is another maker. All parts of the loom must be king-size, not only to support its own weight but also to withstand the stress of weaving the wide, heavy fabric with its dense construction.

Inspecting, fulling, napping, and finishing machinery for felts must also be of large, heavy construction. A single wet felt may weigh a ton or more.

Except for the difference in dimensions, the manufacture of papermaker's felts is similar to that of other fabrics. For woolen and worsted felts, the wool is sorted, blended, scoured, combed, and spun in the usual manner.

Some of the warp yarn is beamed and some is run into the loom direct from a creel. Filling yarn is quilled. The new C&K felt loom uses a coreless bobbin of yarn that is held in the shuttle by a steel clip.

After weaving, inspecting, burling, and splicing, the felt is run through the fulling process; and it is here that really close control is necessary. After the felt is compressed to correct dimensions, most of the water is extracted.

Teasels Used for Napping

Some felts require napping to give them the desired finish. Napping is done by a number of teasels mounted on revolving drums. A teasel is cousin to the cockleburr, and the best ones are grown in Belgium and France. No one has yet been able to manufacture a satisfactory substitute for the teasel.

Singeing is also done to some of the felts to remove uneven protruding fibers and give the felt a smooth face. Various treatments are also used to make the felts moth-proof, mildewproof, and bacteria resistant.

The felts are placed on drying rolls similar to the rolls of a papermaking machine for drying, sizing, and conditioning before being packed for shipment.

In recent years, much of the new paper-mill construction has been in the South. Following the trend, some felt-manufacturing plants have also been built in the South.

At St. Stephens, S. C., Albany Felt Co. began operation in 1956 in a new $2,500,000 felt plant. All operations from raw wool through finished papermaker's felts are carried out in this modern 100,000-sq.-ft. plant.

Lockport Felt Co. dedicated its new felt plant at Starkville, Miss., on April 27-28, 1956. Less than six months after beginning full-time operation, the plant had to be expanded to meet the demand for its product.

At Waycross, Ga., a new $1-million plant went into operation in 1956. Built by Scapa Dryers, Inc., a British-Canadian firm, the plant weaves and finishes dryer felts made of cotton, asbestos, nylon, and blends.

F. C. Huyck & Sons also began making felts in a new mill in Aliceville, Ala., in 1956. All these felt plants are producing at full capacity.

Although the demand for papermaker's felts is brisk and the future looks bright, it is no place for beginners. As one felt plant manager puts it:

"We are in a highly specialized branch of the industry. Granted that a newcomer had a million dollars to invest in a felt plant. He could buy the same kind of machinery and the same type of raw materials we have.

"But it would be hard for him to buy the experience and know-how to produce felts. Then when he did make some felts, he might have equal difficulty selling them.

"The felt is a very important and critical item in the manufacture of paper, and the papermaker cannot afford to take chances with an untried product. It requires years of cooperation between the papermaker and the felt maker to produce exactly the right kind of felts for each machine and type of paper."

WOOL is sorted and graded by expert handlers who separate the fleece into various grades.

BLENDING of the wool is done in this picker after the scouring operation has removed impurities.

PAPERMAKER'S FELT
At Lockport Felt Co.

• Many of the processes used in the manufacture of papermaker's felts are similar to those used for other fabrics. But in felt making, everything from machinery to finished product is on a much bigger scale. Here are some of the highlights of manufacture—

Lockport Felt Co., a pioneer in the manufacture of papermaker's felts, has a mill at Newfane, N. Y., and one at Starkville, Miss. The Newfane plant has been producing felts since 1891; the Starkville plant began operations in 1955.

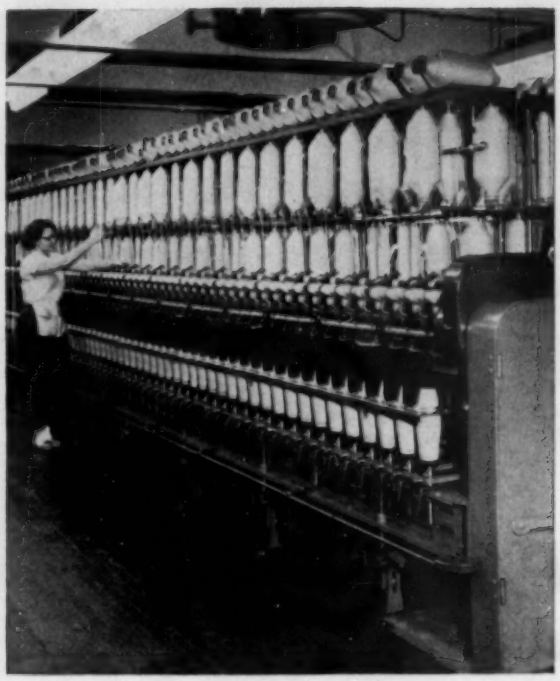
The plant at Newfane is a wholly integrated unit producing finished felts from raw materials. Yarns for the Starkville plant are produced at Newfane. Both plants make felts to the paper mill's specifications; felts up to 650 ins. wide are woven.

Although wool is the fiber most used for felts, synthetics such as nylon and Dacron are often blended with wool to increase the strength and service life of the fabric.

The following pictures made at Lockport Felt Co.'s Newfane mill show felts being made of woolen and worsted yarns.

PAPERMAKER'S FELT

ROVING is spun into yarn on the spinning frames after it has been carded.

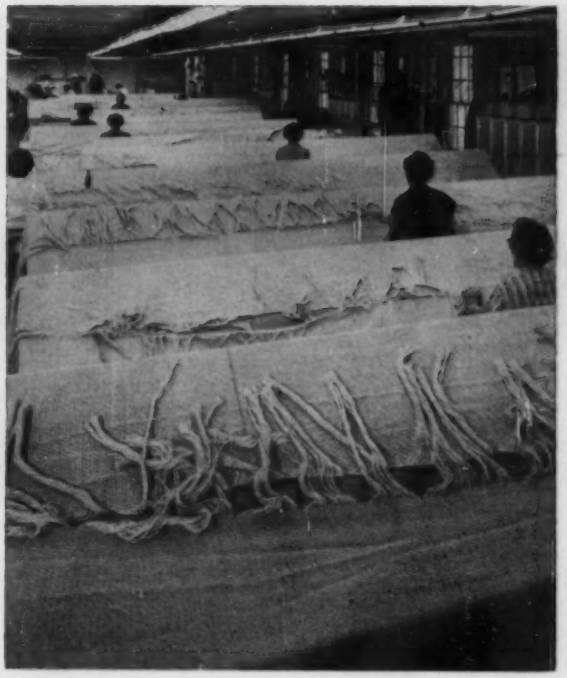


WORSTED yarn is spun on a ring spinning frame similar to that used for cotton.

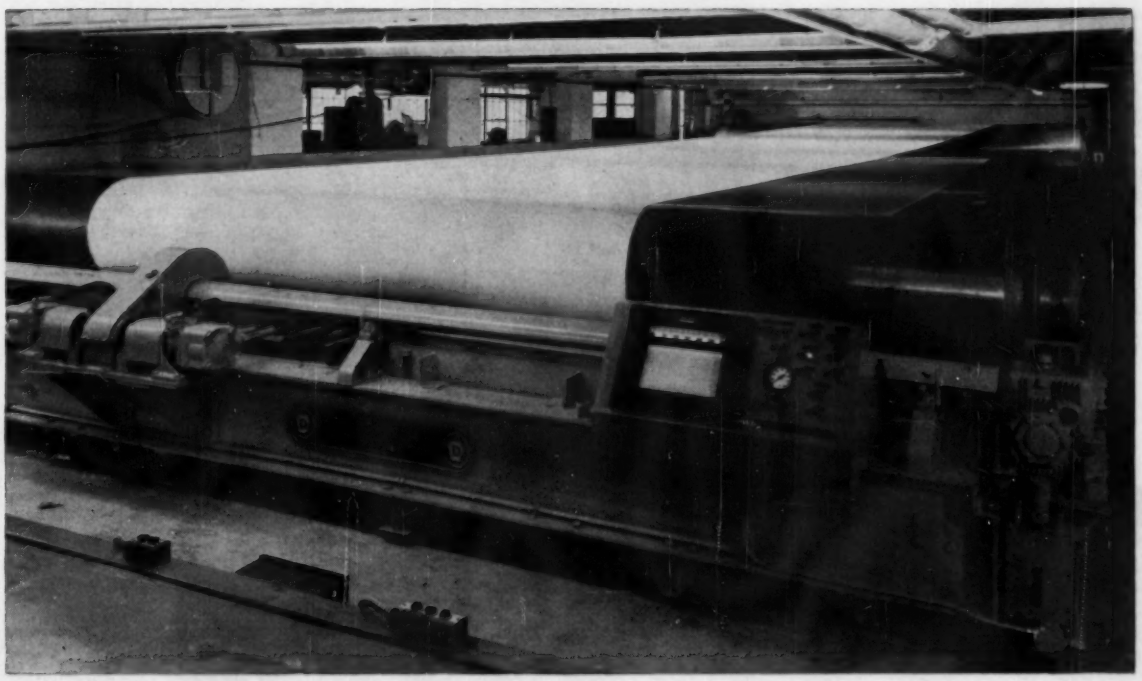
BURLERS, after weaving, inspect every inch of the felt for minor faults or imperfections.

FULLING shrinks the felt to about one-half its original width and length. Some felts are napped.

LOOMS are at left and in background. Operators are drawing warp yarn in harnesses and reeds.



ENDS of the felt are spliced by hand to produce a smooth joint that makes it endless.



FELTS are dried, shaped, and conditioned on these heated rolls that are similar to paper-machine rolls.

THREE PAIRS OF SOCKS are packaged in one unit. The U-board serves as a base to form a neat package and identifies size and color.

PACKAGING SOCKS
Is Done Automatically—

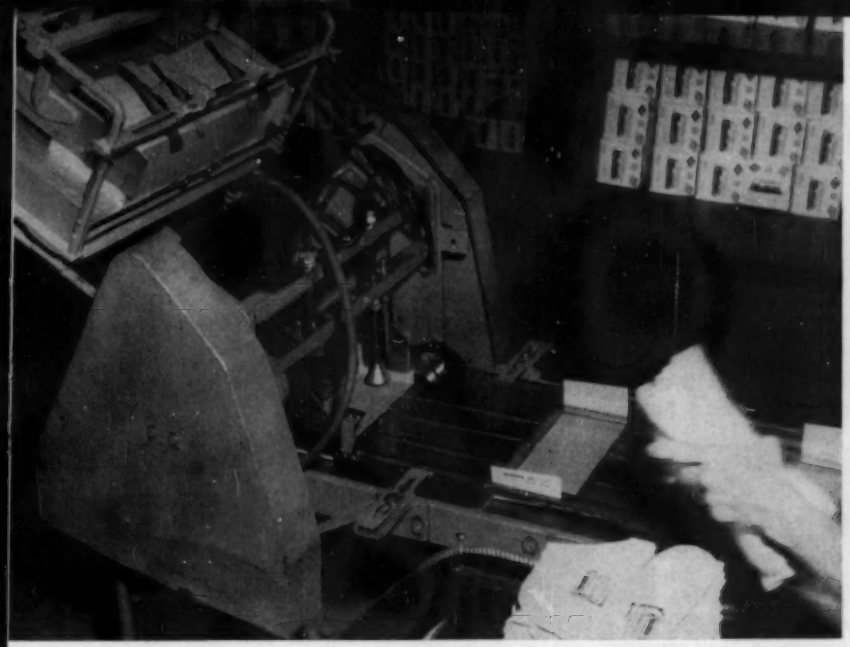
—at William G. Leininger Knitting Co., where one machine and three girls package and box 416 doz. pairs of socks per hour. Packages are made from cellophane rolls that make 2,082 packages.

IN LINE WITH MODERN packaging trends, William G. Leininger Knitting Co., Inc., Mohnton, Pa. installed a wrapping machine in 1953 to automatically package its well-known line of Railroad socks. Today this unit, which is attended by one girl, turns out 1,664 ½-doz. packages per hour. The unit also takes care of other brands of men's work socks, which are wrapped in plain cellophane.

Built by Hayssen Mfg. Co., the packaging machine is arranged alongside a gravity conveyor from the transfer section. Socks come from the transfer section in 20-doz. lots arranged neatly on boards. The girl who feeds the packaging machine takes these boards from the conveyor and places them on a table close to the packaging machine.

A pneumatic board-feeding device is attached to the end of the feed conveyor. This feed is loaded with U-boards that form the base of each package. Each board is printed with the shoe size, foot size, color, and style of the socks to be put in the package.

As the boards are loaded in the feed, the score marks are bent to produce a better package. The pneumatic device automatically lifts each board with two suction cups, deposits the



BOARDS for the base of the package are fed from a pneumatic device to a conveyor belt, and three pairs of socks are placed on each board.

CELLOPHANE ROLL is replaced at intervals of 1¼ hrs. Part of the cellophane is transparent so that the socks can be seen in the package.

board on the conveyor, bends it to a U shape, and slides it under two plates. A ½-hp. compressor under the feed unit supplies the suction.

Three Pairs Packaged in One Unit

As the board travels past the operator, she places three pairs of socks from the table onto the board. The socks all face the same direction, and the package moves a trip lever to start the wrapping mechanism.

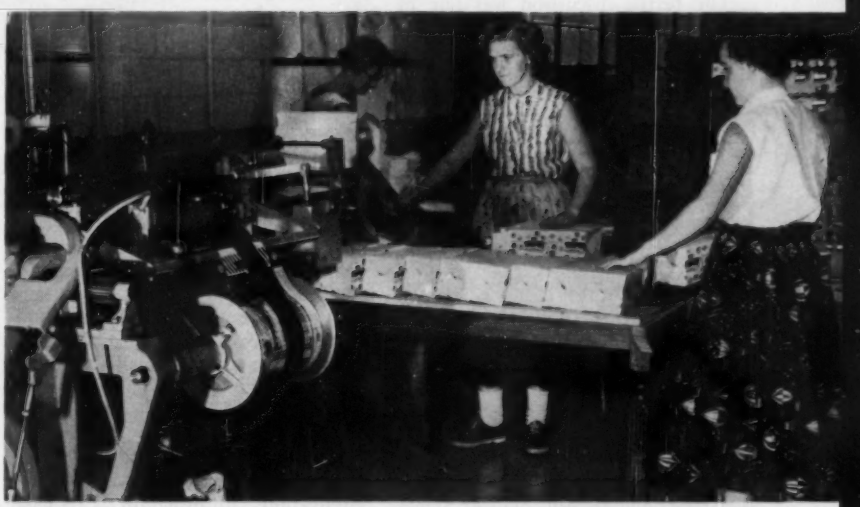
The mechanism is timed with the carrier to lift the packages to the cellophane, which has been automatically fed from the roll. Folding plates then push the cellophane under the U-board to form a neat package.

There are 10 heat-sealing plates to seal the package after it has been folded. Spring arms press each package down on the heat-sealing units, which are kept heated to 475° F. To keep up with the high production, 450-w. heating units have been installed.

The ends and bottom of the packages are sealed, but a space is left at the center bottom to allow trapped air to escape out of the package.

When the packages move from the heater plates, they drop on a conveyor band into a chute to fall onto the boxing table. Two girls stand at the boxing table, and one girl builds the Railroad boxes while the third girl places four packages in each box. As the boxes are filled, they are stacked on a truck and pushed away to the stock bins in 120-doz. lots.

Cushion-foot socks are packaged in ½-doz. boxes with two pairs of socks in a package.



TWO GIRLS place the finished packages in boxes, which they build, as the machine delivers up to 1,664 packages per hour.

Cellophane Is Fed Automatically

The cellophane for Railroad socks is fed automatically from a large roll that wraps more than 2,000 packages. The cellophane is printed, but part is transparent so that the socks inside the package can be seen.

Black marks on the edge of the cellophane control an electronic eye to keep the correct position of the cellophane. The black mark stops the cellophane feed rolls. A leather strap over the rolls keeps the cellophane from overfeeding. Each roll of cellophane lasts about 1¼ hrs., and rolls are replaced in less than 1 min.

Sock sizes that are processed on the machine range from 10s to 13s, and no adjustment is made for changes in size. However, when production is switched from long to short socks and vice versa, the machine is changed; 20 to 30 mins. are required for this change.

Plans are being made to increase automation at Leininger by incorporating the packaging machine with the transfer operation. Socks will move directly to the packaging machine from the transfer table on an automatic conveyor.

EVALUATING MAINTENANCE
Reduces Labor Cost 50%

• The discussion at the textile session of the recent Plant Maintenance Conference dealt chiefly with the methods used in one plant to reduce its maintenance cost. By constantly evaluating its methods, the plant cut its maintenance labor cost more than half. Here are the methods used.

THE GROWING IMPORTANCE of maintenance in every industry was shown by the attendance at the recent Plant Maintenance and Engineering Show and Conference held in Cleveland, where all previous attendance records were broken. More than 20,000 maintenance men attended the show, and over 2,500 men attended the conference.

The textile discussion was one of 64 held during the conference; and like the other conferences, the main concern was reducing maintenance cost. The speaker's text explained what has been done at Celanese Corp.'s Narrows, Va., plant to reduce cost.

There are approximately 2,000 employees at the plant; of these employees, 375 workers are in the chemical operation and the others are in textile operations, including twisting, spinning, coning, cheesing, and beaming. These production machines are maintained by maintenance-department employees.

80% of Work Is Scheduled

There are 130 maintenance workers for the entire plant; this figure does not include the central shops. About 80% of the manhours of all maintenance workers are scheduled daily.

Work orders on jobs up to 40 manhours and from $1,000 to $5,000 capital expenditure are governed by the plant engineers. Area engineers approve work that is to be done.

Maintenance work that requires more than 40 manhours or more than $5,000 capital expenditure must be approved by management men.

Job orders are written by maintenance or production foremen for jobs estimated to require from four to eight manhours. These job-order punch cards are processed through IBM machines.

A telephone call or a note written by maintenance or production foremen is used for small jobs up to 4 hrs.

Labor Is Reduced 50%

A long-range plan with seven basic maintenance controls has reduced maintenance labor more than 50% during the last 6½ years, even with an increase in plant capacity.

The seven basic controls are: (1) organization, (2) work and labor control, (3) preventive maintenance, (4) corrective maintenance, (5) training, (6) materials controls, and (7) safety.

Planning and scheduling work is one of the most important functions of the maintenance program. One of the first problems in establishing such a program is selling the foremen on the need to plan. Cooperation is needed to make the program successful.

Planning and scheduling programs often produce immediate results in one department where foremen cooperate; while in another department with similar operations, the same program produces poor results. Therefore the foreman must be made to realize that planning and scheduling make his job easier.

How To Overcome Problems

The second problem is in communications. Information as to what is wanted must be transmitted to the people concerned at the earliest possible moment.

A third obstacle to planning and scheduling is that of machine setup changes to meet production and sales requirements. A rush production order takes precedence over a maintenance schedule, and the result is a disrupted schedule.

Another problem is determining how much work and what work should be scheduled. In textile plants, all the work cannot be scheduled; but between 80 and 90% can be scheduled. However, the optimum point will not be the same for two plants or may not even be the same for two departments within the same plant.

Determining what inspections are necessary is the first problem of an inspection program. Some inspections are useless; some have certain benefits, but the good is outweighed by the cost; others will make money for the company.

Setting realistic schedules for inspections is the second problem after a decision is reached to make inspections. Just because an inspection is necessary obviously does not mean that it should be repeated frequently. Some maintenance inspections are necessary every shift; others that are equally important are necessary only once a year.

Three requirements are necessary for a successful inspection program: (1) an accurate system for scheduling and recording inspections, (2) recording the results of the work done, and (3) keeping paper work to a minimum.

Short-term inspections made frequently and on a routine basis require no special paper work or records. But when the period between inspections lengthens and as the inspection procedure becomes more complicated, a tickler record system must be used.

Train Men To Make Inspections

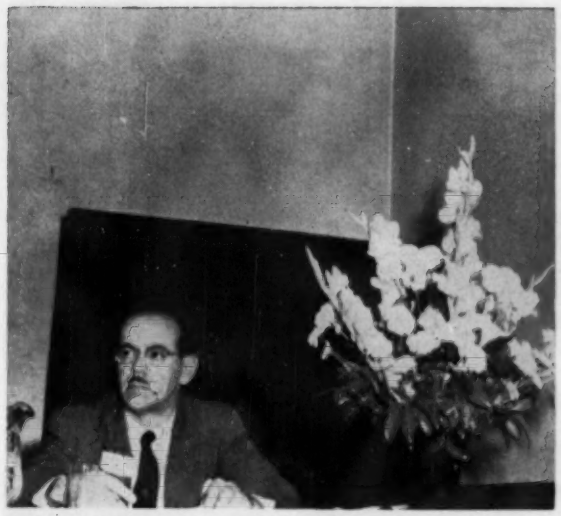
The final problem in making inspections is in training men to make inspections economically and to do only the necessary work. Therefore continuous training is required so that maintenance men (1) know exactly what is wanted, (2) do the job the most efficient way, and (3) avoid false moves.

Permanent files of technical data for various pieces of equipment must be kept including: nameplate, specifications, purchase, and renewal-parts data.

Celanese keeps these records in production departments so that they are readily available to foremen. A Kardex-type card is used.

There Are Three Types of Repairs

Maintenance repairs in a textile plant can be classified in three categories: (1) breakdown repairs, (2) ma-



DISCUSSION LEADER William H. Godshall, plant engineer, International Latex Corp., Dover, Del., headed the textile session.

MAIN SPEAKER R. V. Ott, maintenance engineer, Celanese Corp. of America, Narrows, Va., demonstrates an organizational chart.

chine-overhaul repairs, and (3) product-quality repairs.

For most breakdown repairs, the foremost problem is to get the machine back in operation. But in a successful maintenance program, it is equally as important to find the cause of the breakdown. It is still more important to correct the machine so that additional breakdowns of the same nature are prevented.

In machine-overhaul repairs, the problem is to determine what repairs are justified. Justification of repairs is on a basis of keeping the machine running or making repairs to keep the machine producing a first-quality product.

In product-quality repairs, a machine may be operating at a normal speed and turning out a normal amount of goods but quality is below standard. The machine must be repaired to bring it back within quality-control limits. These repairs are called "precision maintenance" because they are made with the optimum precision at all points.

Tolerances Must Be Established

On many textile-machine components, a wide degree of tolerance is acceptable since the quality of the product is not affected; but for a few critical points, tolerances must be within precise limits. At these critical points, Celanese gives the required amount of attention. It does not waste time being overprecise at uncritical points.

As an example, quality standards in the cheese-twisting operation are close and foremen are constantly alert for defects. At one time, production from 5% of the spindles was rejected from cross threads.

Then Celanese started using a punched-card system of maintenance analysis within the department. The analysis showed that in 45% of the cross threads the mechanic was tightening the spindle; in 45% of the instances, he was loosening the spindle.

Some Repairs Are Unnecessary

Instructions were given that spindles were not to be repaired, except for very obvious difficulties, until the product had been rejected a second time. Under this new system, the percentage of rejects remained substantially the same as when the mechanics were alternately tightening and loosening spindles. The maintenance force was promptly reduced.

Another instance of reduced maintenance was in reducing the number of electricians from three to one by giving the one electrician a motorized buggy to transport himself and his tools. Now maintenance is mostly breakdown repairs, with only limited inspection.

Other similar experiences led to setting up the following five factors as a basis for determining when preventive maintenance is advantageous: when (1) total maintenance cost is reduced, (2) more production is obtained, (3) quality of production is improved or retained, (4) prompt delivery required by a customer is met, and (5) loss of production labor wages is avoided by reliable operation of equipment.

Punched-card analysis of our preventive maintenance has been kept for 2½ years on many jobs of 1-hr. length or over. The card is punched to the nearest ½ hr. and records the type of repair, material used, expense of material, emergency call, and false-alarm call.

Celanese developed its own cards and uses 16 different cards. It is now studying the cards to standardize on only one face card with other data on the back.

Electricians, for instance, use IBM cards set up for periods of inspection.

The date of inspection is prepunched on the card, and the line foreman issues the cards to the electrician and receives them when the inspection is completed.

Identical white and pink cards are filed. The cards show the date of inspection and what is to be inspected.

Foreman Controls Inspection

The white card is issued to the electrician, and the pink card is held by the foreman. If at the end of one week the white card has not been returned to the foreman, he checks with the electrician.

When the electrician receives a card for preventive maintenance, he uses a code to record his work. If he, say, tightens a certain part, he circles the job he does on the card.

Then the white and pink cards are filed together and work their way to the front of the file to be reissued in six months.

Other cards are used for machine overhauls. A record is kept on a card of the hours between overhauls, say every 25,000 hrs. Then a crew is assigned to overhaul the machine.

Many of the cards are run through an IBM machine to analyze repairs being made.

DYED SKEINS are hung on wooden rods that slide on the rails of the truck. Skeins are dried and inspected on these trucks.

PULL SKEINS are handled in trays that slide in the shelves of a truck. Skeins are compressed while the labels are slipped on.

HAND-KNITTING YARNS
Need Careful Handling

• There's a resurgence of interest in wool hand-knitting yarns. To get best results in knitting, yarn must be free from imperfections and packaged just right. Here's a report on how mills are handling these yarns to get them in top-quality condition.

HAND-KNITTING YARNS are made on all spinning systems in many yarn sizes. Two- and three-ply yarns are most used. These yarns arrive at the finishing plants, where they are dyed, wound, and packaged in skein form.

Special handling devices are necessary to keep handling to a minimum and to keep the yarn clean and free from faults after dyeing and drying. These handling devices include special racks, trays, and trucks.

Trucks Hold Many Skeins

After dyeing, the skeins are slipped on wooden rods, which are placed on the horizontal rails of a metal truck. These trucks, which hold several hundred skeins, are pushed into the drying room, where the yarn is slowly dried.

These trucks have 180° casters, and they are pushed from the dryer to the inspecting room. Lightweight plastic covers over the trucks help keep dirt and lint off the yarn.

Inspecting is generally done by the light from a north window while the yarn remains on the trucks. As each rod of skeins is inspected, it is placed on another rail; and a second rod is pulled forward for inspecting.

Inspectors check the yarn for unevenness, poor knots, evenness of shade, and other faults. Faulty yarn is removed and placed in a waste box. Uneven dyed yarn is redyed.

Plastic Shields Keep Lint Away

The trucks are moved to the winding section, where the skeins are removed and placed on the adjustable swifts of the skein winders. Plastic shields over these winders help keep lint from settling on the yarn.

Yarn from several skeins is wound on one 9° 15′ cone. Each knot is carefully tied with a weaver's knot. Tension devices on the reel release the brakes when the tension arm is pulled down. This action keeps an even tension on the yarn at all times and makes for better wound cones.

The cones of yarn are transferred to a pull-skein winder, which winds

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To Prevent BROKEN FILAMENTS In Low-Twist Fabrics—

• Broken filaments can be made in any department in the mill. So to be safe, you must set up an inspection and prevention program in every department from yarn receiving through weaving. Here is an outline to guide you.

By ERNEST R. BECKNER

MOST BROKEN FILAMENTS in synthetics come from flat yarns with the producer's twist of 0 to 3½ tpi. The first step in preventing broken filaments is to inspect every case of yarn as it is received to be sure it isn't damaged in transit.

Cones, pirns, and cheeses are wrapped individually and are separated in the cases. Cakes are jacketed in knitted tubes, and skeins are wrapped in bundles to prevent damage during transit. Inspect these package forms and separators when you receive yarn to be sure they are in good condition.

When cases are opened, be careful to avoid damaging the yarn. Lay the cases down easily; don't tilt them and drop them. Be sure the case identity number is protected until all packages are removed and found to be satisfactory.

Check for Damage During Transit

As each package of yarn is exposed, handle it by the cone tip or pirn tip; don't touch the yarn with your hands. Soils deposited on yarn at this point will not come out in finishing.

As the yarn is lifted from the cases by the pirn tips, inspect each package briefly to see that it is not damaged and has no broken filaments. Send all packages with appearances indicating broken filaments to the laboratory or quality-control department to be checked on a seriplane board.

Most yarn for throwing is packaged in cakes. And although the cakes are covered with jackets, they must be handled carefully. Never expose the yarn by slipping the jackets off.

Yarn Soaking for Protection

When packages are soaked, place them in the tub so that there's a minimum of distortion.

Too much cooking of size reduces the gel strength. Successive soakings in the same liquor exhaust the ingredients faster than the water content, and weak liquor does not provide proper protection for the yarn in subsequent operations and results in broken filaments.

Wicking, a concentration of the soaking solution at the top, bottom, or side of the yarn cake, will also cause broken filaments. Proper soaking temperature and extracting time minimize this tendency. The proper soaking temperature for 100/60 bright rayon with 2½ tpi., for example, is 135 to 140° F.

Electronic psychrometers to check the moisture content of yarn after it's dried should have smooth sharp probes.

Breaks Prevented in Preparation

Winder hands are the first employees to remove the wrappings from cake yarn. They should be trained to: (1) handle it carefully, (2) touch the yarn as little as possible, (3) have smooth hands, and (4) remove all damaged packages from production.

Cake-holder tops must be free from nicks caused by dropping them or by other rough handling. Cake holders must be directly below pigtail guides. The height of the pigtail above the top of the cake should be equal to the height of the cake. Pigtail guides, tension disks and posts, porcelain guides, and bobbin flanges must be smooth.

In throwing, flyers, separator disks, pigtail and porcelain guides, and take-up bobbins must be smooth. All employees should be taught not to handle bobbins by grasping yarn surfaces; they should hold the flanges.

Bobbins should not be filled flush with the outside diameter of the flanges. Dirty flyers should not be used. Care must be taken to avoid damaging yarn when bobbins are put on pinboards.

Warping Is a Critical Position

Creeler hands at warpers and beamers can be very valuable in eliminating broken filaments because they handle each package of yarn individually; therefore they can remove all damaged packages.

The following parts should be checked regularly for cut surfaces: tension disks and posts, guides on the creel and condensing board, and drop wires at the stop motion. For this inspection, use a fairly sharp knife blade. Nicks and cuts too small to be seen can break filaments and strip them back.

Cone or pirn tips must be smooth. Various devices such as fingernail polish, tops from facial cream, and buttons with bent hairpins are used on rough cone tips.

Slashing To Prevent Breaks

Slashing is often blamed for broken filaments in warps; sometimes slashing breaks filaments and sometimes it doesn't.

Slashing faults that result in broken filaments are: wrong size formula, cylinders too hot or too cool, rough split rods, cut comb, rough yarn-beam flanges, and rough hook reed.

The proper cylinder temperature for a seven-cylinder slasher for 100/60 dull rayon with 2½ tpi., for instance, is 175, 185, 200, 190, 180, 170, and 150° F. If the first three cylinders are covered with cheesecloth or Teflon, the temperature may be a little higher, but usually not over 200° F.

If the first cylinder is too hot, the damp yarn sticks to it. If the temperature is higher than 200° F., the yarn will be brittle and lifeless and have little or no stretch.

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Cotton Research Clinic Highlights PREPARATION and TESTING

- The 1957 Cotton Research Clinic, sponsored by the National Cotton Council, was held this year at Savannah, Ga.
- Reports briefed on the following pages cover the effects of processing on cotton fibers, an improved opener-cleaner, a carding cleaner, and two papers on the evaluation of opening and cleaning equipment.
- Other papers describe a roving-frame evener, uniformity analysis with beta radiation, and roll run-out in spinning.

[For a complete report on J. F. Bogdan's paper on increasing card production see TEXTILE WORLD, March, p. 131.]

OPENER-CLEANER Is Key To Integrated Opening and Cleaning

- Built-in cleaning has been added to the SRRL opener. Tests show 35% cleaning efficiency with only 0.3% lint loss at 1,500 lbs. per hr. for the opener-cleaner alone. The complete line had 8% more trash and 8% less lint in the waste than the control line.

By R. A. RUSCA and R. C. YOUNG, Southern Regional Research Laboratory

Originally planned as a system requiring three types of machines, the Southern Regional Research Laboratory's integrated cleaning system for textile mills now uses an opener-cleaner as the only cleaning machine in the opening room and a carding cleaner as the only cleaning machine in the picking line.

The opener-cleaner is basically the SRRL cotton opener with built-in cleaning. The machine incorporates the opening and blending ability of the earlier opener, requires less air to operate, gives higher production, and is slightly larger in size.

In its present form, the opener-cleaner has a total of nine lickerin-type cylinders. There are one kicker, four opening, two cleaning, and two doffing cylinders. The original opener has one kicker, five opening, and five doffing cylinders. The new cleaner is 18 ins. longer and 2 ins. lower than the opener. Horsepower consumption is approximately the same.

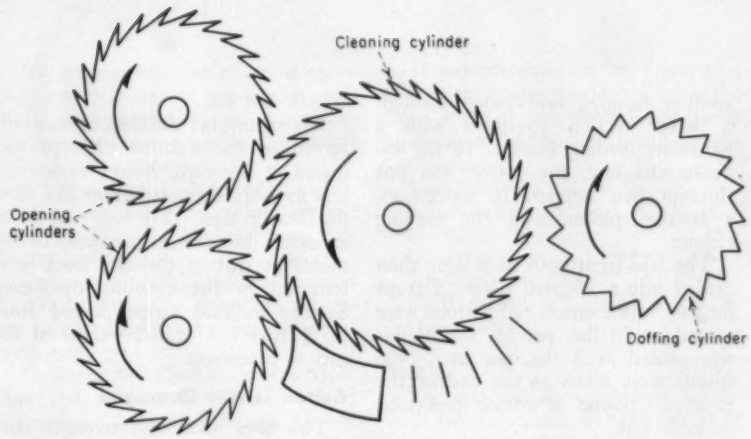
Fibers Are Free To Move

None of the teeth on the opener-cleaner cylinders intermesh. The cotton fibers are never held firmly, and they are always free to move in the direction of the greatest force.

The cleaning cylinder, rotating at a higher surface speed than the opening cylinders, gently removes the finely divided fibers from the opening cylinders and passes the fibers over the cleaning mechanism. In turn, the doffer cylinder removes the fibers and casts them into a stream of conveying air.

Tests were made on conventional and experimental lines of opening equipment. The conventional opening-picking line consisted of an automatic blending feeder, horizontal Buckley opener, cage section, porcupine cleaner, overhead condenser, hopper feeder, and lattice belt. A one-section picker with Kirschner beater served as a breaker and finisher picker.

The experimental opener-cleaner



OPENER-CLEANER CYLINDERS permit the cotton to move in the direction of the greatest force. None of the teeth intermesh.

line substituted the opener-cleaner for the Buckley and porcupine openers.

Production Is 1,500 Lbs. per Hr.

The opener-cleaner was hand-fed at the rate of 1,500 lbs. per hr. from stock previously processed through the automatic hopper feeder. The stock delivered by the opener-cleaner was then hand-fed to the picker-line hopper feeder at 350-lbs.-per-hr. production.

One bale each of five widely grown commercial variety cottons was processed. Each bale was carefully sandwich-blended, and 50-lb. lots were withdrawn from the blended bale for each test. All tests were performed in triplicate.

Stock was processed into a 13-oz. picker lap, a 55-grain card sliver, a 55-grain first and second drawing sliver, a 4.2-hk. roving, and 36s yarn.

To equalize the effect of roll and spindle variations, the same roving and spinning spindles were used on cottons processed by both the control and experimental lines.

Waste Has More Trash

The tests revealed that the two processing lines and the opener-cleaner alone have no significant effect on fiber length and length distribution. There is a slight lowering of fiber strength by the control line. For the average of all cottons, the opener-cleaner line removed 0.56% less waste and provided a slightly cleaner picker lap. Analysis of the waste with the Shirley Analyzer showed the opener-cleaner line had 8% more trash and 8% less lint in the waste than the control line.

Less Lint Is Lost

Shirley Analyzer determinations of the raw cotton and the picker lap showed an average of 4% more cleaning and 0.4% less lint loss for the opener-cleaner line.

It is probable that these results would have been somewhat different if the Buckley and porcupine openers had been processing at their normal production rates. These openers were operated at 300 lbs. per hr. because only one hopper feeder was available.

The opener-cleaner alone removed about 2.5% waste, with 86% of the waste being foreign matter and 14% being lint. Cleaning efficiency was 35% and lint loss was 0.3%.

Preliminary laboratory tests indicate that cleaning efficiency will decrease to about 28%, depending upon the cotton and trash characteristics, if the production rate is increased to 3,000 lbs. per hr.

Card Waste Is Unchanged

In both processing lines there was no appreciable difference in card waste. All cottons behaved normally in processing through drawing, roving, and spinning. The strength, strength uniformity, and elongation of the yarns from both lines showed no significant differences.

Skein strength was also measured, and the results followed the same trend as with single-strand strength. Yarn grade and long- and short-term uniformity were essentially equal for the control line and the opener-cleaner line.

Picker Is Converted Into A CARDING-CLEANER

• A one-process picker was converted into a carding cleaner and used in an integrated opening-and-cleaning line. Cleaning efficiency jumped to 59%, and lint losses were one-third to one-half as great as for the control line.

By GEORGE J. KYAME and WILLIAM A. LATOUR, Southern Regional Research Laboratory

The principles of the carding cleaner, developed several years ago at the Southern Regional Research Laboratory, have been applied to the finisher section of a one-process picker.

The picker used is a modified 1914 Saco-Lowell one-process machine equipped with a No. 5 automatic feeder that has a grid under its doffer,

a breaker section with a three-blade, 20-in.-dia. beater, a blending-reserve unit, a finisher section equipped with a 16-in.-dia. Kirschner carding beater, and a calender section.

Toothed Cylinder Is Used

The finisher section was first stripped of its Kirschner beater, evener pedals, feed rolls, damper box, and fan. These were replaced with a toothed cylinder, an antipluck feed roll with its associated guide bar, an air-blast doffer and fan, and a modified cage housing and beater cover.

The original feed-roll-drive system was modified by replacing the conventional cone drive with a wide-range variable-speed pulley to drive the antipluck feed roll. Manual adjustment of the variable-speed pulley controls the speed of the antipluck feed roll, which in turn determines the weight of the lap produced.

Pilot-scale tests were conducted to compare the carding cleaner with conventional mill equipment for cleaning efficiency, lint loss, fiber damage, neps, yarn strength, and yarn uniformity. A Whitin Model K feeder was used to preopen the baled cotton.

Line Has Two Hoppers

In the control line, the cotton was fed from a hopper to a horizontal Buckley opener, a porcupine cleaner, another hopper, and twice through a picker section equipped with a Kirschner carding beater. In the experimental line, the cotton was put through two hoppers in succession, a breaker picker, and the carding cleaner.

The laps from both lines were then carded into a 55-grain sliver. Except for the Wilds variety, all cottons were carded at 10 lbs. per hr; the Wilds was carded at 5 lbs. per hr. Nep counts were taken at the end of the twentieth pound of cotton processed in each test.

Sliver Is Drawn Twice

The card sliver was drawn twice and then processed into 4.2-hk. roving. The roving was spun into 36s yarn that was graded and tested for strength and uniformity.

The tests showed that the amount of cleaning accomplished in the experimental line was significantly greater than that achieved in the control line. Lint losses, in general, were lower in the carding-cleaner line. The lint content of the waste from the experimental line ranged from about one-third to one-half the corresponding lint contents of the control-line waste.

There was an average cleaning efficiency for the five cottons of 50.6% at 435-lbs.-per-hr. production with 0.18% lint loss.

No significant differences were observed in the number of neps produced at the card. Fewer motes and less fly were extracted from the carding-cleaner laps. This fact was to be expected, however, since more of the motes present in the raw stock were removed in the cleaning operation. Savings in card strips ranged from 0.3% to 0.7% of the weight of the cotton processed.

Cotton Is Not Damaged

The fiber array and strength data indicated no damage to the cotton, and the processing had no effect on the quality of the yarns. There were no significant differences in yarn strength (either single strand or skein), strength uniformity, or elongation.

No effect on yarn grade was noted. Yarn uniformity, however, showed a slight but statistically significant improvement. Short-term variations in yarns made from cottons processed by the carding-cleaner line averaged 0.3% less than the variations in the control yarns; the long-term variations were 0.5% less.

Differences in cleaning efficiency, lint in waste, lint loss, total card waste, card strips, and yarn uniformity were significantly in favor of the carding-cleaner line.

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Bad OPENING-ROOM Practices Show in Yarn Properties

• Overloading, overmachining, and long ducts increase neps and waste and reduce yarn quality. Tests show the effect of operating practices on nep count, card waste, and yarn properties.

By DR. ZOLTAN SZALOKI, Whitin Machine Works

There are many common practices in opening rooms that produce unfavorable results. One of the worst is overloading feeders.

To explore the effect of overloading, we processed Strict Low Middling 1⅛-in. cotton through the opening-and-picking line in our research department. This line consists of blending feeders with Axi-Feed, feed table, Axi-Flo, downstroke openers and cleaners, and a short 20-ft. duct feeding to a two-beater picker.

Overloading caused cleaning efficiency to drop from 65.5% at 180 lbs. per hr. to 60.5% at 300 lbs. per hr.

Long ducts between opening and picking machines can cause trouble. A test was conducted with SLM cotton where the shortest possible ducting was used between the opening and picking machines, with a paddle-type separator used to avoid rolling of the stock. In another test, a long duct was used and the cotton was drawn through it by a fan.

Cotton drawn through the long pipe had a nep count of 290 per 10 grains as compared with 270 for the short pipe, a difference of 7.4%.

To demonstrate the effect of opening and cleaning on nep count, card waste, and yarn properties, a number of tests were made on three different machinery organizations:

Organization A—No opening machinery was used; the cotton was fed from the blending feeders to the two-beater picker.

Organization B—Blending feeders and three porcupine downstroke cleaners followed by the two-beater picker were used.

Organization C—Blending feeders, Axi-Feed, feed table, Axi-Flo, and downstroke openers followed by the two-beater picker were used. The downstroke cleaner was bypassed for the SM cotton.

Strict Middling 1 1/32-in. and Strict Low Middling 1 1/16-in. cottons were tested. The same carding, roving, and spinning equipment and settings were used for all tests. Nep counts were made on the card webs.

Test 1

The SM 1 1/16-in. cotton was processed through Organizations A and C. Nep count for A was 10 to 13% higher than for C, flat strips were 6.5% higher, and lickerin waste was 8.2% higher.

Without opening machines, as in A, it was obvious that the major portion of the motes would remain in the stock until it was carded and cause an increase in the nep count of the card web.

Yarn properties were:

Organization	A	C
Deviation (%)	20.1	15.2
Unevenness	114.4	103.1
Size variation (%)	4.0	1.7
Break factor	2,205	2,285
Grain break	301.5	307.2

Test 2

The test was then repeated on the same two organizations with the SLM 1 1/16-in. cotton. Nep count was 310 for A as compared with 270 to 275 for C, or 11 to 13% higher. Lickerin waste for A was 36% greater, and flat strips were 4.8% greater.

Yarn properties were:

Organization	A	C
Deviation (%)	19.3	17.0
Unevenness	101.2	94.0
Size variation (%)	4.9	3.5
Break factor	2,190	2,350
Grain break	291.6	312

Test 3

The SM cotton was then processed on B through the blending feeders, a downstroke opener three times, and the two-beater picker.

The overmachining at B resulted in a nep count of 355 to 360, compared with 310 to 315 for C. Lickerin waste was about the same. Flat strips were 3% greater.

Yarn properties were:

Organization	B	C
Unevenness	108.1	103.1
Deviation (%)	18.7	15.2
Size variation (%)	3.7	1.7
Break factor	2,225	2,285
Grain break	304.8	307.2

Test 4

For the SLM cotton, nep count for B was 290, compared with 270 to 275 for C. Lickerin waste was 13.6% greater, and flat strips were 2.5% greater.

Yarn properties were:

Organization	B	C
Unevenness	100.8	97.0
Deviation (%)	18.3	17.0
Size variation (%)	3.7	1.7
Break factor	2,225	2,285
Grain break	304.8	307.2

These tests make it clear that a minimum number of effective opening and cleaning machines give better results. And to keep the nep count to a minimum, the multiple use of the same type of machine, especially in tandem, should be avoided.

Evaluation Techniques Improve COTTON PREPARATION

• Careful testing and analysis of test data may increase your cleaning efficiency substantially. Tests described here increased droppings 25%.

By WOODBURY K. DANA, Saco-Lowell Shops

The primary purpose of an opening and picking line is to remove the trash in the bale stock without appreciably degrading the character of the cotton. In conducting a test on this equipment, you should determine the extent of cleaning in each unit as well as its effect on subsequent machines.

To make comprehensive tests on opening and cleaning equipment, we prepared a preliminary set of forms that not only carry the complete mechanical details of the machines in question but also have spaces to insert the production rate, time run, pounds run, total droppings, droppings as a percent, and the results of a Shirley analysis. This type of chart should be worked up for each machine in the line.

Test Data Are Summarized

Test data are summarized on a ruled pad having the following column headings:

1. Machine identification
2. Gross weight of stock being tested
3. Gross weight of trash in stock
4. Percent trash
5. Gross weight of droppings
6. Droppings as a percent of production
7. Weight of lint in droppings
8. Percent of lint in droppings
9. Invisible-loss percent
10. Weight of trash in droppings
11. Percent of trash in droppings
12. Percent of potential trash removed
13. Cumulative percent of trash removed

In preparing for a test, all of the machinery data should be entered prior to the actual testing, since this information can be picked up rather readily and without interrupting production. In running the test itself, probably the most serious problem of evaluation concerns the great quantities of material involved.

Tests Should Run 1 Hr.

We came to the conclusion that it is impossible to select a true sample from the droppings of a machine after it runs several hours. So we set up our opening and picking tests to evaluate all of the dropping from each machine at the end of one hour's operation. This evaluation gives the percentage of trash in a sample, which can be applied to droppings collected from a machine over an 8-hr. run.

Test stock was run through two lines of Saco-Lowell opening and picking equipment. The lines were identical except that a No. 16 opener was used in Line 2 and a vertical opener in Line 1. The No. 16 opener, evaluated in the percent of potential trash removed, did not perform as well as its counterpart in Line 1.

Each succeeding operation of Line 2, however, showed a marked increase over its counterpart in the other line. The total droppings by weight from the two lines were comparable, and an evaluation of the card sliver showed no increase in nep count.

Droppings Increase 25%

We doubled the droppings of the first, second, fourth, and sixth operations of Line 2; and over-all cleaning for this line increased from 67.3% to 74.28%. There was a net increase in droppings of 24.72%.

In the first test, starting with 3.10% trash in the stock, our total droppings were 3.05%. This figure shows an obviously inefficient cleaning job. But after making the changes, the total droppings rose to 3.80%, which indicates good cleaning.

The additional white stock in the waste at this point will be far outweighed by the decrease in fly and extra cleaning in other departments.

Tests of this nature require a great deal of time, but we believe that more individual mills should build up a backlog of such information. These data not only are valuable in opening and picking operations but also may help you to quickly detect troubles in spinning and weaving.

SLIVER EVENER Uses Air To Produce Uniform Roving

• A machine that feeds various-size slivers into the roving frame to produce a single uniform-size roving at all deliveries is under development

By **HUGH M. BROWN**, School of Textiles, Clemson College

An experimental evener for roving frames that produces a uniform roving from various-size slivers is under development at Clemson School of Textiles. The evener is basically a pneumatic servomechanism that shifts the sliver along conical rolls as the sliver size varies.

Servos operating on the usual electrical or electronic principles are probably too expensive for consideration; and since it is common to have compressed air available in mills, it is believed that a simple mechanical-pneumatic servo can be engineered at a cost that would be justified by the results produced.

To simplify manufacture of the test machine, it was decided to use conical rolls having a straight taper. It is obvious that equal shifts of the sliver along the rolls near the small end will produce relatively greater changes in sliver speed than similar shifts near the large end of the rolls.

Compressed Air Is Used

Several arrangements were tried in which both the movement of the trumpet and the sensing of sliver size were accomplished by means of compressed air. The arrangement that seemed best is a form of pneumatic Wheatstone bridge that uses a bellows differentially, in the analogous position of the galvanometer in an electrical-bridge circuit.

The bellows was made amply large so that the differential force caused by different-size slivers in the trumpet will be sufficient to move the trumpet and positively position it for feeding in fiber at a nearly constant rate.

In practice, the device gave better performance than expected. The coefficient of variation for 31-grain output sliver made from 33- to 50-grain input slivers was less than 1%. This figure pertains to the average size of the sliver measured in 1-yd. lengths.

Compensation for very short-term variations was not as good. One reason is that it takes some time for the sliver trumpet to move to a new position called for by an abrupt change in sliver size.

To adjust the evener for different-size slivers, simple interchangeable trumpets that can be quickly inserted in the trumpet arms are planned. Runs made with a larger trumpet gave excellent compensation for slivers varying from 41 to 62 grains. Forty output slivers had a spread of only 1.3 grains and a maximum coefficient of variation of 1.4%.

Here again, the results are averages for five 1-yd. lengths. The evenness tester showed reductions in unevenness of approximately 33%.

From progress to date, it seems that it may be possible to develop an evener mechanism for roving frames that would justify its cost in terms of yarn improvement and savings in production costs. Use of the evener would make close control of picker-lap weight unnecessary, and output-sliver size would be essentially independent of moisture regain of the stock.

One possible drawback is that variation in fiber fineness affects the size of the roving produced. It is believed, however, that with modern blending methods this variation would not materially impair the value of the system when it is perfected.

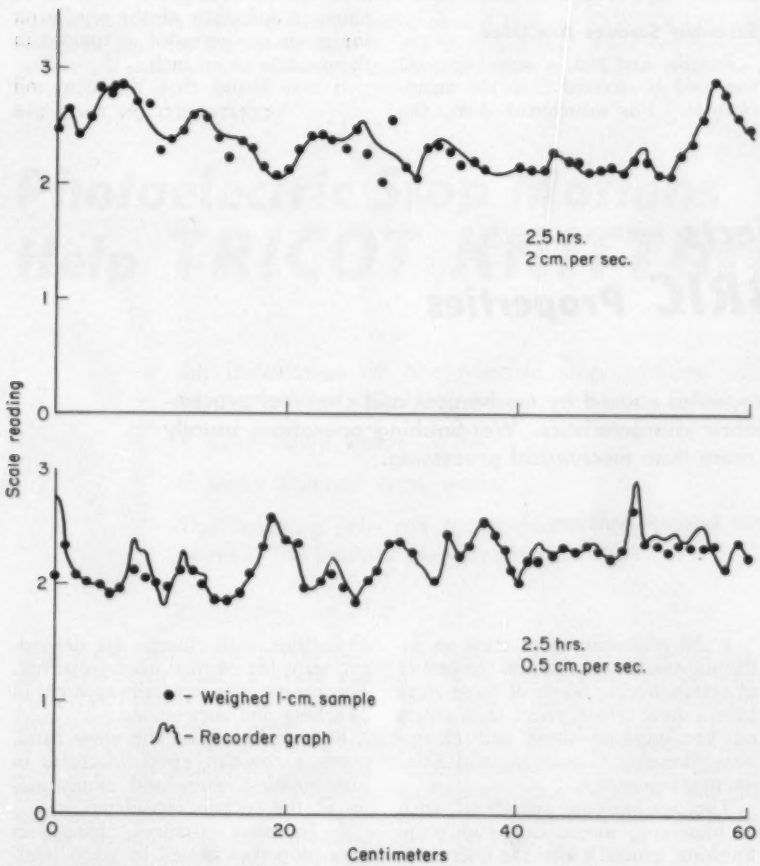
Beta Radiation Measures Sliver and Yarn UNIFORMITY

• A new uniformity analyzer for roving and yarns that gives a positive indication of the mass present has been developed at the University of Tennessee. Radioactive isotopes and an air-filled ion chamber are the heart of the instrument.

By P. R. EWALD and C. B. LANDSTREET, U. S. Dept. of Agriculture

Beta radiation, widely used for control purposes in the manufacture of paper, sheet rubber, plastics, and metal foils, presents special problems in the manufacture of textiles. But a statistical type of instrument, which makes use of the unique properties of beta radiation in studying the uniformity of cottons, may resolve some of these problems.

A number of beta-ray gauges are on the market, but an investigation showed that none was applicable to yarns and rovings. Although some could be adapted to handle sliver or picker laps, it was necessary to design and construct a special beta-ray gauge for this work.



EVENNESS CHARTS show both recorded and weighed values plotted against each other. The top chart ran 2½ hrs. at 2 cm. per sec.; the bottom chart ran the same length of time at 0.5 cm. per sec. Agreement between the radiation-analyzer curve (line) and actual weights (dots) was good.

Analyzer Is Easy To Make

The source was prepared and mounted to give a radiation-absorption arrangement. For the radiation detector, an atmospheric-pressure, air-filled ion chamber was chosen because of its simplicity of construction. A specially built preamplifier was used to match the ion chamber to the electrometer. A strip-chart recorder, plugged into the output of the electrometer, completed the equipment needed for the instantaneous analyzer.

A check was made on the linearity of the analyzer by weighing a number of yarns from 70s through 16s and obtaining graphs for each on the analyzer. The mean of each graph was then plotted against the reciprocal number, and the linearity was found to be satisfactory. Linearity is almost a necessity if the signal is to be further amplified for analysis.

Recordings and Weighings Agree

As a further check on operation of the analyzer, lengths of roving were run at two speeds through the analyzer, and the graphs were carefully marked to identify check points on the roving. The roving was then cut into 1-cm. lengths, and each length was weighed on a milligram balance. The weighings were then superimposed on the graphs. Agreement was good, allowing for splices where the cutting paper was joined and for power-line surges.

It is believed that an analyzer using a beta-radiation detector can be perfected that will give a positive indication of the mass present, and work will be continued in this direction.

Front-Bottom-Roll Run-Out Influences YARN QUALITY

• Eccentric drafting rolls on spinning frames are one of the major causes of imperfect drafting. Yarn strength and quality decrease as bottom-front-roll run-out increases.

By JAMES E. DOUGHERTY, Institute of Textile Technology

Since previous investigations are based on studies of top-roll eccentricity, it was decided to conduct experiments with the bottom rolls of a spinning frame to determine the effects of roll run-out on yarn quality.

The first series of tests was conducted on a Saco-Lowell Roth long-draft spinning frame with a draft of approximately 18.75 spinning 30s warp yarn from a single-creeled 1.60-hk. roving.

Eight bobbins of roving, selected for their similarity in uniformity, were spun into yarn at eight spindle positions. Ten doffs were produced, with the amount of run-out in the front-bottom steel roll of the spinning frame being changed for each doff.

Eccentric Sleeves Are Used

For the first test, a new front roll was used as received from the manufacturer. For subsequent doffs, the roll was machined down at the bearing section to permit the use of eccentric sleeves to introduce run-out.

Measurements of the amount of run-out at each spindle position were made by using a dial-indicator gauge mounted on a magnetic base. The range of deflection of the needle on the gauge was recorded as run-out in thousandths of an inch.

It was found that the new roll

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How Processing Affects FIBER and FABRIC Properties

• Changes in fiber properties caused by mechanical and chemical processing are reflected in fabric characteristics. Wet-finishing operations usually alter fiber properties more than mechanical processing.

By L. REBENFELD, Textile Research Institute

To determine the effect of several processing operations on cotton-fiber mechanical properties, six cottons in one-bale quantities were manufactured under identical conditions into a standard-construction sheeting.

Sample fibers were removed at several stages of processing from the original bale, yarns, scoured fabrics, bleached and mercerized fabrics, and resin-finished fabrics. The mechanical properties of fibers taken were determined, and the effect of each processing step was examined.

These conclusions were reached:

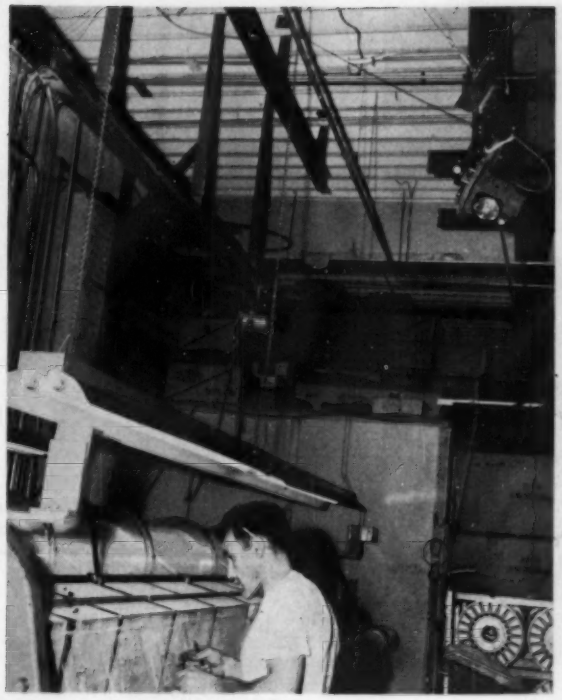
1. All processing steps exert an influence on the mechanical properties of cotton fibers. Some of these steps have a more radical effect than others on fiber-breaking stress and elongation, fiber-elastic modulus, and fiber-uncrimping energy.

The wet-finishing operations, such as bleaching, mercerizing and resin-finishing, generally alter the fiber properties more than carding, spinning, and weaving.

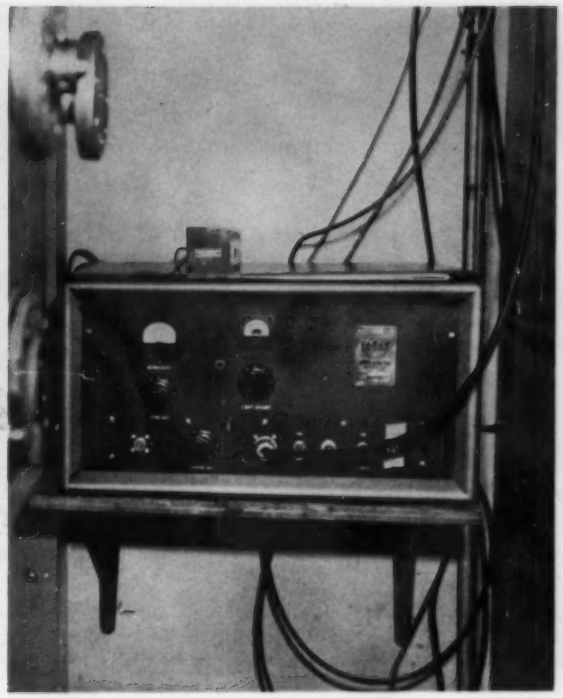
2. The relative magnitude of the changes in fiber properties caused by some treatments is not constant for all cottons; such changes are dependent upon the original fiber properties. This condition is especially apparent in bleaching and mercerizing.

Resin-finishing, on the other hand, exerts a constant effect (decrease in fiber-breaking stress and elongation) on all the cottons considered.

3. In many instances, changes in fiber properties caused by given treatments are reflected in the change of the fabric characteristics. This fact is considered good evidence for the premise that cotton-fiber properties influence the behavior of fabrics.



SCANNING UNIT is suspended from the ceiling about 8 ft. over the needle bar. The light beam shines on the cloth, and the detector unit picks out faults as the beam travels across the cloth.



CONTROL UNIT is placed behind the knitting machine. Sensitivity adjustment ranges from 0 to 10 and is set to 5 for 40-den. fabrics. A counter records the number of faults in each piece.

Photoelectric Stop Motions Help TRICOT KNITTING

An installation of photoelectric stop motions on Reading and Reiner tricot machines is helping to—

- **Keep faults below 3 ins.**
- **Make knitters' work easier**

The scanning units are suspended 8 ft. over the needle bars and do not obstruct the knitters' vision or hands.

PHOTOELECTRIC STOP MOTIONS are now being used on tricot machines at Fischer Mills, Inc, North Bergen, N. J., to detect faults rapidly in knitted cloth. Fabric quality has been improved because the faults are kept short and the knitters' work has been made easier.

The scanning units of the stop motions are suspended from the ceiling about 8 ft. above the needle bars on the tricot machines. Reading and Reiner machines have, so far, been equipped with the stop motions, which are made by Lindley & Co., Inc.

The bracket that supports the scanning unit is made from 2-in. angle iron, and it is firmly braced to the ceiling with wires. The scanning unit incorporates a photoelectric cell, a high-speed optical system, and an oscillating mechanism that works on precision bearings.

Beam Hits Cloth Near Needles

The unit is mounted at an angle to the ceiling bracket so the unit throws a light beam at the cloth. The beam strikes the cloth about 1 in. from the needle bar.

A ⅛-in. time motor on shock mountings oscillates the scanning head over an angle about 90°. The beam is timed to travel across the full 168-in. width of the cloth in 1 sec.

The detector unit focused on the cloth at the beam stops the machine when the beam passes a fault in the fabric twice. An operator walking in front of the beam does not stop the machine.

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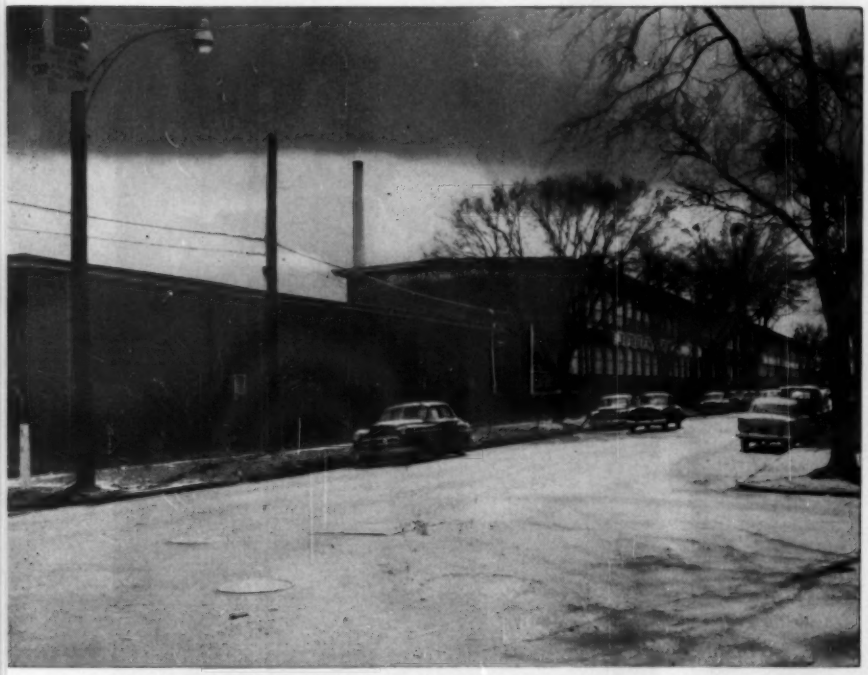


NEW ADDITION, foreground, to Jordan Mills is 156x143 ft. Built for use as a weave room, is is windowless, well insulated, and air conditioned.

Jordan's New WEAVE ROOM *Helps Streamline Production*

The new weaving annex at Jordan Mills, Inc., Columbus, Ga., has—

- **Insulated walls and roof**
- **Wood floor on solid foundation**
- **New air-changing and humidity system**
- **Location to facilitate flow of materials**

JORDAN MILLS, INC., Columbus, Ga., needed extra manufacturing space; and it also had a handling problem caused by back-tracking of materials at various processes. The mill solved both problems by building a new weave room as an annex to its original building.

The looms and quillers will be housed in the new annex. A rearrangement of some preparatory machinery and the relocation of the inspecting, finishing, and shipping departments will result in an annual saving of more than $10,000 in handling costs.

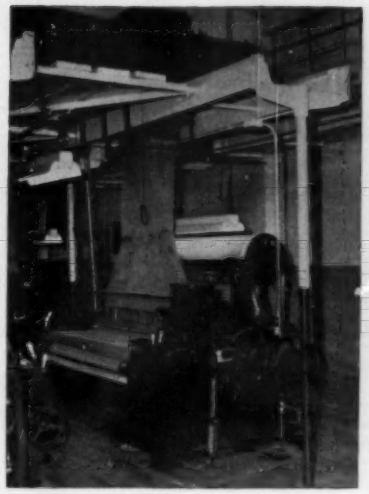
The new annex is 143 ft. wide and 156 ft. long. It is a single-floor, windowless building. The exterior walls are brick and the interior walls are made of 8-in. concrete blocks. There is a 2-in. layer of Foamglas between the two walls.

The steel roof beams are supported by steel columns. The roof is also insulated with a 2-in. layer of Foamglas laid on 3-in. wood decking. The roof has a tar and gravel bonded outer surface.

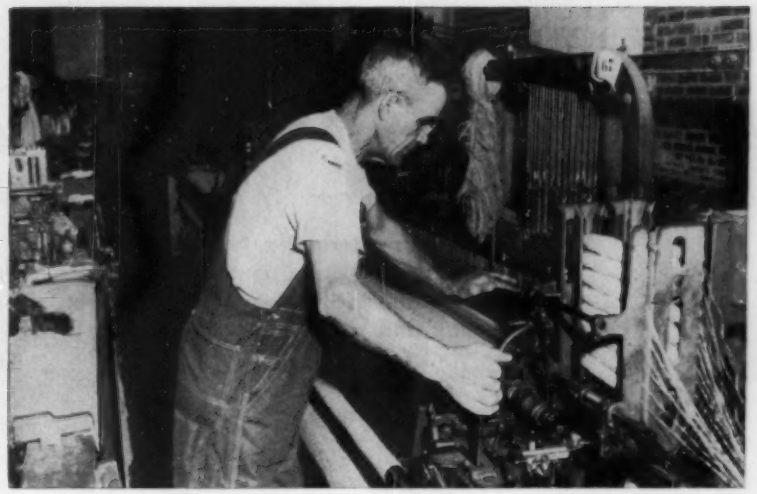
Floor Has a Clay Foundation

The floor of the new room is made especially for the weight and vibration of the looms. The foundation is firmly packed native red clay. A 4-in. layer of tarred crushed rock was placed on the foundation and was topped with 2 ins. of tarred sand. The result is a solid, lasting foundation.

Subflooring is 2 ins. of treated pine planking surmounted by 1-in. treated flooring. A floor of 1-in. hard maple rests on the subflooring. The new



LOOMS include some new jacquards.



DOBBY looms will be moved to the new room later.

weave-room floor is sanded, varnished, and polished.

In-line fluorescent fixtures furnish illumination for the room. American Moistening System year-round temperature and humidity units have been installed. The temperature of the room can be held at a constant 83° F. with outside temperature ranging from 72° to 96° F. in summer. The winter temperature is 80° F. The standard relative humidity for the room is 75%.

First looms to go into the new weave room are 18 new C&K C4 jacquard 4x1 box looms. These looms are 72 ins. between swords and are the latest design suitable for pick-and-pick and tri-color work. They have stationary magazines and take a 10¾-in. bobbin. The looms are mounted on rubber pads.

Some Old Looms Will Be Discarded

As soon as the new looms are started, the mill's other looms will be moved into the new room. There will be 16 older C&K 4x1 and 4x2 box jacquards and 36 C&K 4x1 box looms equipped with dobbies. Eighteen old looms will be scrapped during the move.

Whitin-Schweiter quillers are already located in the new weave room. As soon as all the looms are relocated, the cloth room, cloth warehouse, shipping department, yarn storage room, and some preparatory machinery will be moved to give in-line flow of materials and cloth.

Jordan Mills produces upholstery fabrics of cotton, nylon, rayon, and various blends. Some metallic yarn is also used. The mill does stock and package dyeing. Warp yarn is dyed on the beam. Weaving at Jordan uses only about 25% of the yarn produced; the balance is mostly colored cotton and synthetics yarns sold to knitting mills.

In addition to improving and streamlining weaving, the new room at Jordan will give additional space for regrouping other departments that are becoming crowded. About 20,000 sq. ft. of floor space will be made available for these departments when all the looms are relocated.

QUILLS of 10⅛-in. length are used.

UPHOLSTERY FABRICS in hundreds of different styles will be made.

How Southern Streamlined MERCERIZING Operations

When Southern Mercerizing Co., Tryon, N. C., bought the liquidated Kilburn yarn mill, it got a bonus of an excellent water supply and a chance to lay out its mercerizing operation efficiently. By making a few changes in the plant and by good planning, the plant has—

- **Streamlined flow of goods in process**
- **Cut operating costs**

By J. A. SAFFORD

SOUTHERN MERCERIZING CO., Tryon, N. C., converted a former yarn mill into an efficient yarn-mercerizing plant.

The company's need for a larger and more modern operation of this type had been increasing in recent years; and when the Kilburn Mill property at Tryon, N. C., was liquidated, Southern bought the mill and water rights.

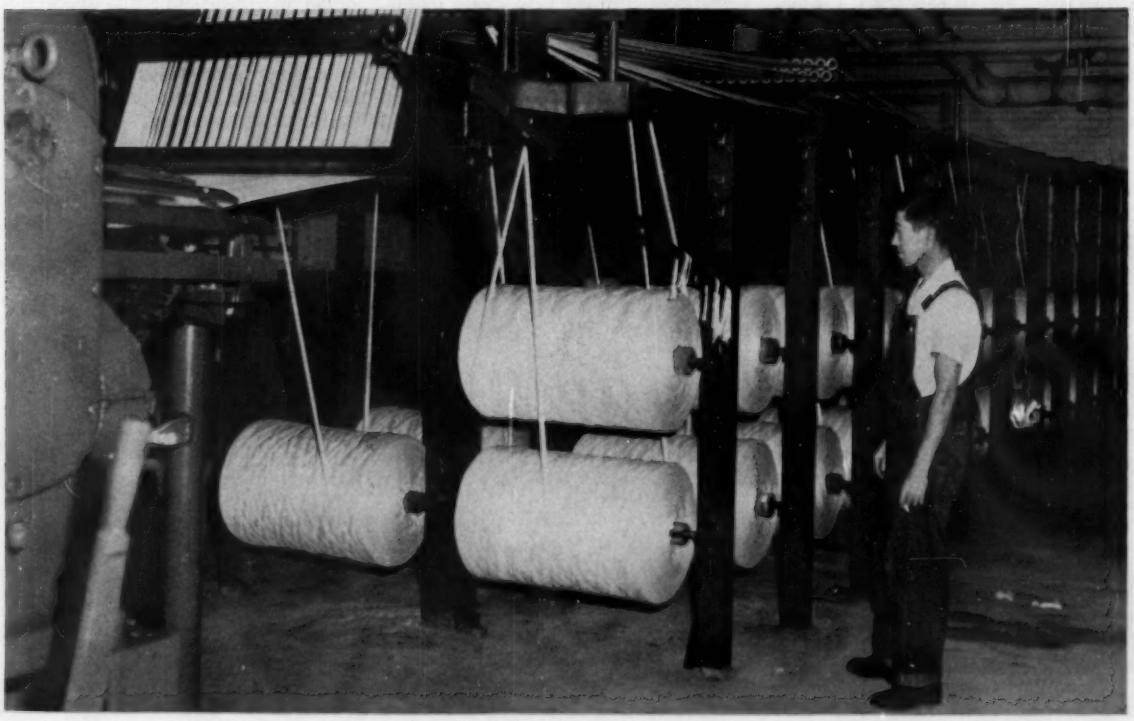
The acquisition of this property gave Southern a plant of modern construction covering 60,000 sq. ft. and, what was also very important, full control of a good supply of excellent processing water from Lake Lanier.

The cost of the plant plus the necessary changes to adapt it to yarn mercerizing was less than all-new construction at today's prices.

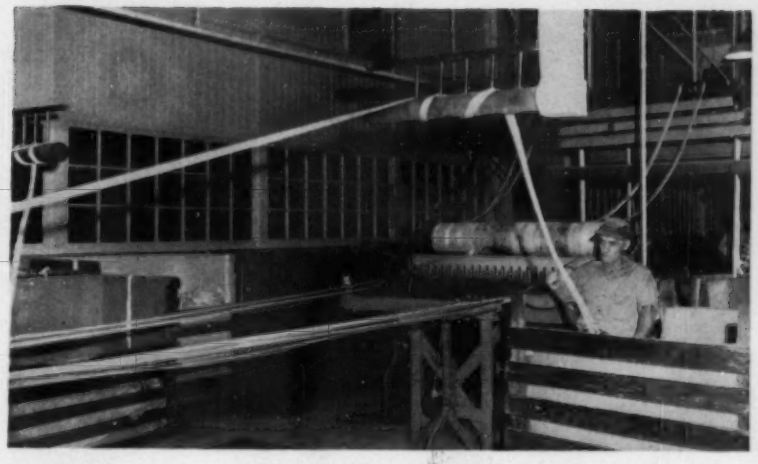
To get the yarn manufacturing plant in shape for its work, Southern strengthened foundations, installed a large evaporative cooling and humidifying system, and added space for offices.

The water mains were enlarged to take care of the needs of a warp-mercerizing range and the skein-mercerizing machines. At present, water consumption is 15- to 20-million gallons per month. The original boiler has enough capacity to handle the new loads.

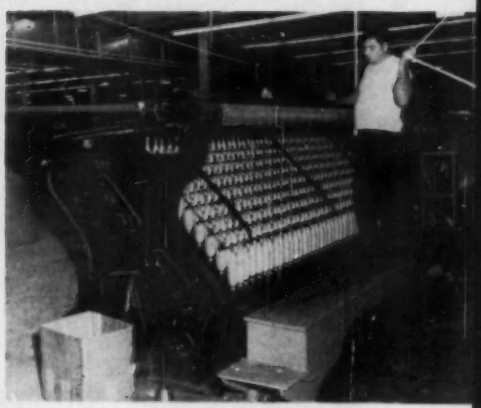
Southern produces 100,000 to



BALL WARPS to be mercerized start out from this creel that handles 48 warps at one time, each carrying 378 ends.



SPLITTING WARPS, which are delivered from the dryer in containers holding several warps, gets them ready for quilling.



QUILLING separates each ball warp into individual yarns and winds the yarn onto quills or bobbins. Southern also produces coned yarn for customers.

125,000 lbs. of mercerized yarns per week. A part of this yarn is mercerized and sold in the open market under the Somerco Durene trademark; the balance goes to meet the needs of China Grove Cotton Mills, Inc., the parent company.

Singles yarns that are marketed largely to hosiery mills make up 5 to 10% of the production.

The plant mercerizes these yarns on skeins prepared in its own winding department. Depending on the count, the skeins will weigh 6 to 8 oz. each. A heavier hank, weighing a pound, is also made up from 3s two-ply yarn.

The skeins are placed on the arms of the Smith-Drum skein-mercerizing machine, and hydraulic pressure is applied to one set of arms so that the skeins are put under tension.

Then the skeins are immersed in caustic soda of the usual mercerizing strength and rotated to insure thorough penetration of the caustic. After 4 to 5 mins., the skeins are raised and excess caustic allowed to drain out. The mercerizing caustic is pumped out of the treating tanks and the skeins are lowered into a fresh hot-water bath and rotated for 3 to 5 mins. for a preliminary washing.

Then the skeins are raised from the bath and allowed to drain. The yarn is then transferred to a Hussong machine for neutralization with weak sulfuric acid and final rinsing. After hydroextraction, the skeins are dried

CONTINUED ON PAGE 212

SKEIN-MERCERIZED YARN is transferred to spools and then onto cones in two operations in this department.

DRAWING-SLIVER VARIATION averages 17 to 18% in Mill No. 1 and 12 to 14% in Mill No. 2. Ten new frames are being installed.

How Harriet Increased CARDING Production

Harriet Cotton Mills, Henderson, N. C., made many improvements in the card rooms of its two plants last year and plans more for this year. Some of the changes are—

- **Opening room completely revamped**
- **New cards with individual drives added**
- **Roving frames converted to larger packages**
- **Building enlarged**

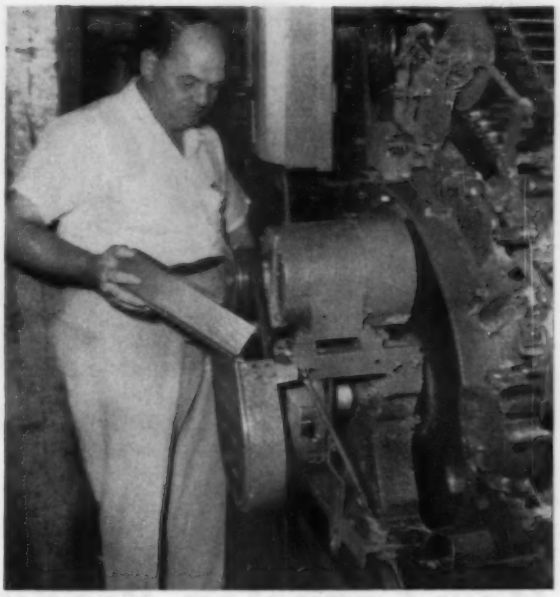
NEW BLENDING FEEDERS head four lines of cleaning equipment in the joint opening room. Chart shows the cotton mix for each hopper.

QUALITY AND PRODUCTION of carded yarns have been improved by modernization and reorganization of the card rooms at Mills No. 1 and 2, Harriet Cotton Mills, Henderson, N. C. The improvements are part of an extensive over-all modernization program [TEXTILE WORLD, Feb., '57, p. 106].

The first change made in the carding departments of the two adjacent plants was to reorganize the joint opening room that serves both mills. Four lines of cleaning equipment are now used. Each line consists of a Lummus feeder, two Super-Jet cleaners, one Superior cleaner, and one Aldrich opener. Six new Lummus feeders will be installed this year.

Seven bales of cotton are laid down for each line, and feeding is from all

PICKERS were rebuilt and one new machine is being added. A recording scale holds lap weights closely to standard.



NEW CARDS have individual drives, continuous strippers, and bottle oilers. A 50-grain sliver is produced by both mills.

of them. Mill No. 1, which spins somewhat coarser numbers than its sister plant, uses $1\frac{3}{32}$-in. cotton. Mill No. 2 processes $1\frac{1}{16}$-in. cotton for the finer numbers.

Picker Rooms Are Revamped

Picker rooms in both mills were revamped and additional machinery was added. Each mill now has four one-process pickers equipped with multiple and carding beaters. One additional Aldrich one-process picker is to be installed in Mill No. 1. An $18\frac{1}{4}$-in.-dia., 13.50-oz., 55-yd. lap is made.

Lap weights are checked on a Toledo Printweigh scale; and off-weight laps have been practically eliminated.

Harriet recently installed 44 new Whitin cards, bringing the total to 215. Mill No. 1 received 20 of the machines; the other 24 went to Mill No. 2. An additional 41 cards will be put in Mill No. 1 this year. Purpose of the new cards is to permit slower carding, not to increase production.

All the cards in use have Abington strippers, which are being changed from the overhead to underfloor system. The new cards have individual American drives. Bottle oilers are used.

A 50-grain sliver is produced by both mills. Mill No. 1 puts 9.75 lbs. of sliver in 12-in. cans; Mill No. 2 puts 10.32 lbs. in similar cans. Can size is being increased from 12x36 to 18x42 ins.

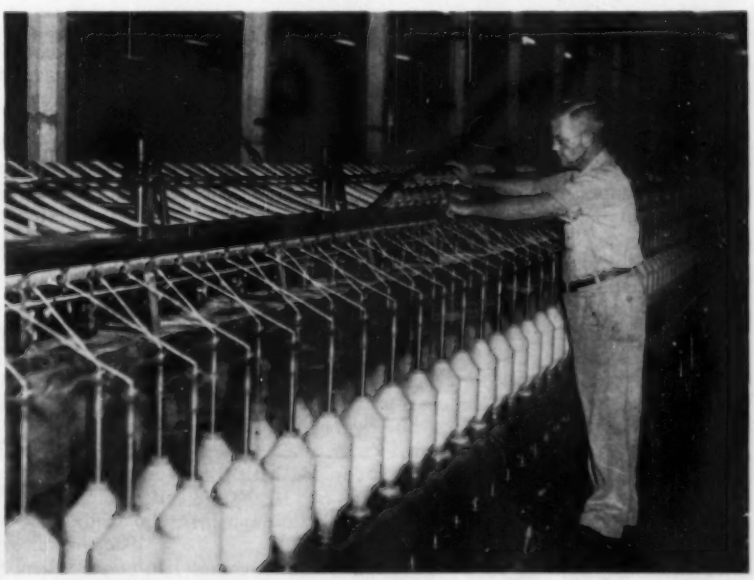
Speeds and settings are based on 175-rpm. cylinder speed. Mote-knife angle is 23°.

Mill No. 1 has 150 deliveries of Whitin Model F drawing with standard four-roll drafting system. These frames produce a 60-grain sliver with 17 to 18% variation. In Mill No. 2, there are 160 deliveries of Whitin K.F.S. drawing making a 55-grain sliver with 12 to 14% variation. Ten Whitin Even-Draft drawing frames will be installed in Mill No. 1 during 1957.

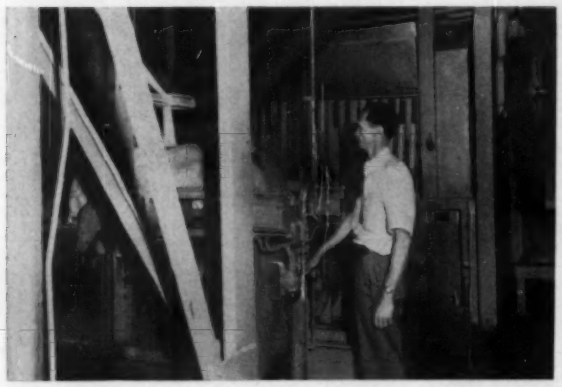
Roving Frames Will Be Added

Roving frames in both mills were converted to 10x5 packages. Mill No. 1 has 12 90-spindle, $7\frac{1}{2}$-in.-gauge Woonsocket frames converted to Whitin Inter-Draft that produce a 1.15-hk. roving. Six Whitin 12x$6\frac{1}{4}$ regular-draft roving frames will be

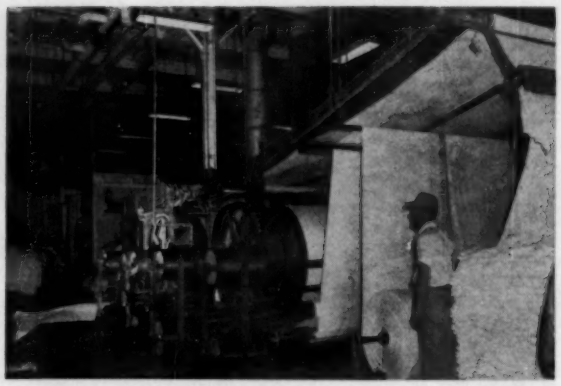
CONTINUED ON PAGE 224



ROVING is made on 10x5 frames converted to Whitin Inter-Draft. Six additional frames will be added this year.



TIGHT-STRAND WASHER in background, one of several in the continuous-bleaching range, reflects mixture of older and newer ideas in cloth preparation. The bleaching range is based on the Becco system of peroxide bleaching.



PUTTING A NAP on 3.00-yd sheeting requires several runs through two two-cylinder Woonsocket nappers. Napping area is exceptionally clean because of an efficient lint-collecting system that pulls lint in from intakes under the nappers.

How Cranston Produces Cotton-Flannel SHIRTINGS

Cranston Print Works Co.'s Fletcher, N. C., plant is set up to handle a varied line of cotton prints. One of its staple lines is 3.00-yd. soft-filled sheeting, converted into satisfactory men's wear by—

- **Napping**
- **Printing with tub-fast colors**
- **Finishing in resin or plain finishes**

At Fletcher, N. C., Cranston Print Works Co. is taking advantage of a modern one-floor plant equipped with excellent machinery to combine the best of the old and new in the production of several well-known lines of cotton prints.

The newest of Cranston's three plants, Fletcher depends for its basic production on eight printing machines, a continuous-dyeing range, and a two-stage continuous-peroxide-bleaching range. The usual auxiliary jigs, soaping and ageing equipment, and finishing ranges round out the plant. The lines handled at the plant include cotton dress and shirting prints, in plain and resin finishes.

One of the fabrics that has been a staple number for some years is a 3.00-yd. soft-filled sheeting that is made up into men's shirts styled for casual wear. To finish these goods, lots are made up in the usual way in the gray room by sewing the pieces into a continuous length sufficient to cover the yardage required by the order.

The goods are then pulled through a desizing bath containing a 2% solution of an enzyme at 160 to 170° F. and piled in rope form in a heated J-box, where they remain for 30 mins.

A thorough washing in a tight-strand washer comes next. The washers are similar in design to the old-style log washers but have stainless-steel tubs and enclosures and hard-rubber rolls.

At this stage of preparation, Cranston can route fabrics through a brown-sour stage set up to one side of the bleaching range proper. A weak sulfuric-acid treatment at this point can mean the difference between a good bottom for dyeing and a poor one.

The 3.00-yd. flannels are not given the brown-sour step. After converted starch is washed out, the goods are saturated in a 3% caustic-soda solution and hauled up into a J-box, where they remain at a temperature of 210 to 212° for 45 mins.

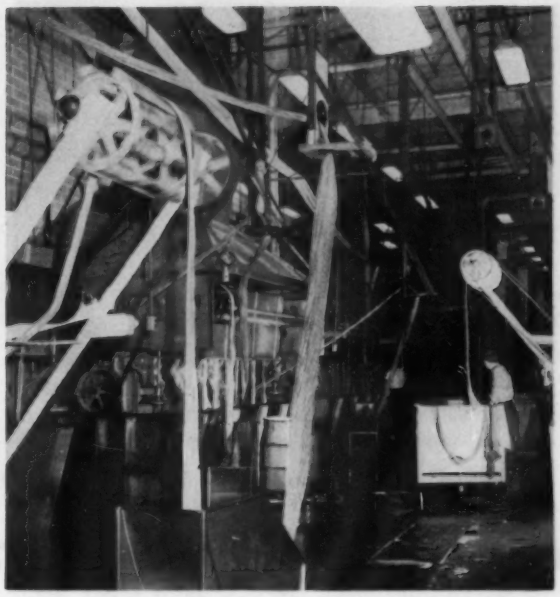
Another tight-strand washing follows, and then the goods are saturated in a peroxide solution stabilized with sodium silicate. They are held over in a J-box at 210 to 212° F. for another 45 mins. and then are washed through a tight-strand washer and into ceramic-tile-lined white bins.

Cranston breaks continuity at this point for various reasons. Some lines are mercerized, some go directly to dry cans, and others go to can-tenter drying ranges; so the white bins act as a storage and distribution center.

The soft-filled sheetings are dried on a can-tenter range to prepare them for napping.

Napping for this style is a one-sided proposition; only the face is napped. Cranston's nappers are set up in a

CHECKING FIT, the printer is helped by ultraviolet light from fixture (arrow). Ultraviolet light makes undeveloped Rapidogen-type dyes fluorescent so the printer can see them.



ROPE SOAPERS are used to clean up goods after printing and ageing and to develop the colors fully. In contrast to bleach-range washers, the soapers exert little tension on the goods.

central position in the main floor and are not walled off in any way. The lint-gathering system is so efficient that little or no lint is visible on the nappers or any of the surrounding areas.

The 3.00-yd. sheetings are given several runs through a battery of two two-cylinder Woonsocket nappers. As in all napping operations, the number of runs depends on the nap required, the nature of the goods, and the condition of the goods at the time of napping.

Prior to printing, Cranston runs the napped goods through a short tenter for a final straightening. A vacuum system removes all loose lint before the goods enter the frame. This extra cleaning of the fabric cuts down lint accumulation in the color boxes of the printing machines.

Many Styles Are Printed

Flannel-shirting design has been of such scope that practically every style of printing is required to produce a complete line of the designs prevalent today.

Cranston dyes dischargeable direct and developed shades on jigs and light vat shades on a continuous range. Naphthol-prepare work is a pad-can-tenter operation, later printed with the proper salt.

Rapidogen colors and aniline black are also used to round out the line. Cranston's two vat agers and an acid ager provide plenty of capacity for all types of colors requiring this kind of aftertreatment.

After aging, the prints are generally given a thorough rope-soaping in a series of reel-type washers and are dried on cans.

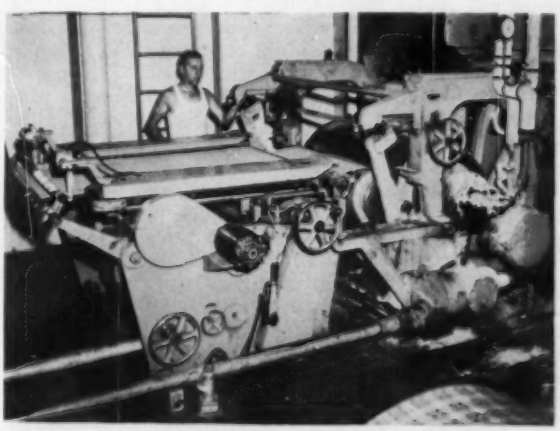
The flannels are for the most part finished through a pad-can-tenter range. Starch-and-oil finishes predominate, but in the past year there has been a steady growth in the amount of resin applied to these shirtings.

Cranston's Dri-Smooth process utilizes melamine resins to produce a minimum-care type of finish. Shrinkage control on the resin finishes is kept at 2% or less without need of further mechanical processing.

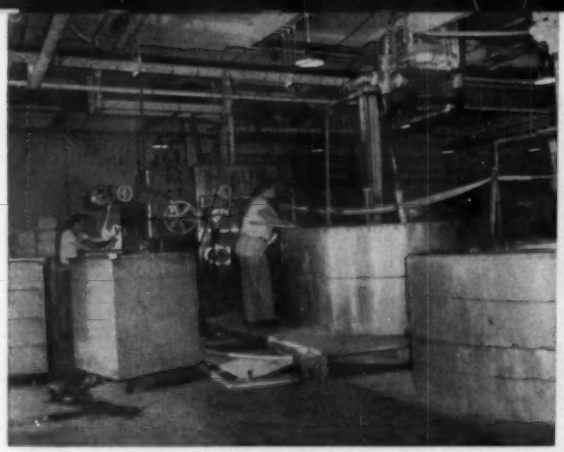
Practically all the starch-and-oil finishes are put through a compressive-shrinking range to control shrinkage to 1% or less.

The line of 3.00-yd flannels is only one of several important items in Cranston's line of men's- and women's-wear fabrics. The company has believed strongly since the early thirties that special finishes and good merchandising under the Cranston label pays off, and the success of its several specialized lines bears out this thinking.

There is good evidence of faith in the future, too, in the shape of the 60,000-sq-ft. addition being completed. John Gregory, plant manager, says, "We've outgrown our plant in a little more than five years of full-scale operation. We expect to move the dyehouse and the maintenance department into the new section. That will give us more maneuverability and room to grow."



RUBBER BELT compressive-shrinkage unit, ideal for flannels, produces results without affecting the nap. There is no need for shoes on this type of shrinking machine, which eliminates any chance of cylinder scoring.



PEROXIDE BLEACHING is carried out in 4,000-lb.-capacity kiers made of stainless steel.

TENSIONLESS WASHERS are used to remove all bleaching chemicals from the fabric.

How The William Carter Co. DYES KNITTED FABRICS

The new dyehouse at the Barnesville, Ga., plant of The William Carter Co. produces up to 175,000 lbs. per week of circular-knit cotton fabrics. Features of this unit are—

- **Centralized control of all wet operations**
- **Closed-coil heating for becks and kiers**
- **Forced circulation of dyes and chemicals in the becks**

By ROBERT W. PINAULT, Assistant Editor, TEXTILE WORLD

The William Carter Co.'s new dyeing and bleaching facilities have been set up to eliminate variables as far as possible and to take advantage of the newest in processing and control equipment.

Starting with the advantage of processing only its own fabric, the plant utilizes control equipment and formula-processing methods to get consistent results.

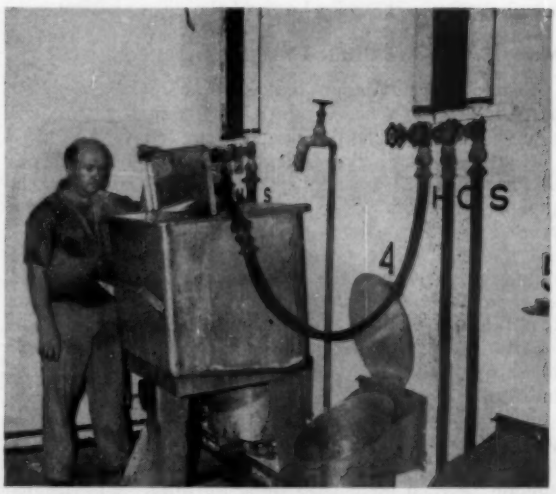
The fabrics produced are largely for underwear purposes and will vary considerably in weight and width, but the bulk of production is in 18- to 19-in.-width cotton tubular fabrics.

A large proportion of Carter's production is bleached tubing. To get a good bottom and a pure white, the plant relies on the batch method of peroxide bleaching.

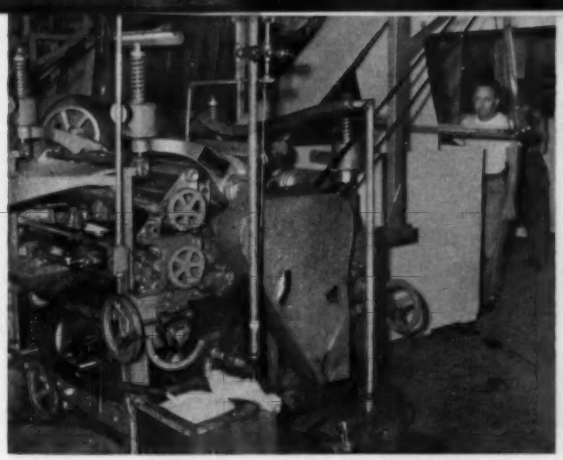
Four stainless-steel kiers that can handle 4,000 lbs. of goods each are the main producing unit, along with a 2,000-lb. kier. The kiers are heated with closed steam coils located under the perforated false bottom. During the bleaching operation, a circulating pump draws liquor from below the false bottom and sprays it over the top of the goods.

How Carter Bleaches Fabric

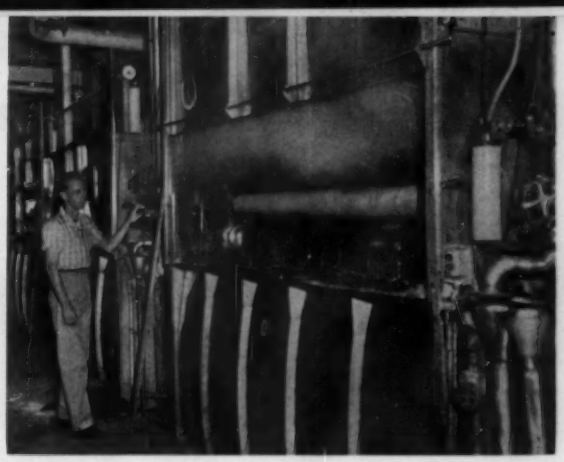
For a full bleach, Carter first pulls the goods through a James Hunter washer designed to keep tension at a minimum. The thoroughly wetted goods are hauled



COLORS ARE MIXED in 60- or 120-gal. stainless-steel tanks mounted on casters. Hot water, cold water, and steam are available through flexible hoses at each station. Delivery of dye is to receivers mounted on the wall that connect with pipes to the becks and kiers.



EXTRACTING AND FINISHING are done in one run on bleached or dyed goods. The first nip extracts water, and the second nip removes excess finishing material applied in the connected pad.



DYEBECKS are deep and are never overloaded. Dyes and chemicals are delivered to the becks through the pipe at the right. The right-hand funnel is used to carry off unwanted liquor.

out of the washer by a winch and dropped into a fitting mounted over the center of the kier. The fitting carries cast-in pipes mounted at an angle, and through these pipes the kier charge is pumped as the goods are delivered through the fitting and into the kier.

Piling the goods is helped by a flexibly mounted pipe that extends below the fitting. The operator moves the pipe about to pile even layers of goods over the entire area of the kier.

The goods run into the kier are saturated during loading with a formula containing:

112 lbs. peroxide (50%)
40 lbs. borax
80 lbs. sodium silicate
7 lbs. sequestering agent
30 lbs. of a detergent emulsion

Steam is turned on the closed coils, and the circulating pump is started. The load is brought to 180 to 190° F. and maintained for 5 to 6 hrs. Then the bath is dropped and a warm rinse is given the goods, followed by a fresh cool rinse.

The goods are then pulled out of the kier over a winch and into a James Hunter washer for a final washing before going to the extractors.

The washer is the same type as that used for the prewashing operation. Tension in these washers is kept at a minimum by reels that are surfaced with rubber slats. If tension develops between strands, the slats on the take-up reel are depressed, thus reducing the diameter of the reel with the result that the surface speed is lowered and the tension is reduced.

Good Control Helps Dyeing

Carter reduced its dyeing problems by eliminating as many variables as possible. Take dyebath heating, for example. Carter's becks are heated with closed steam coils; so bath volume remains constant and there is little chance of overheating certain dyes that tend to tar out if hit with live steam. When it is possible to maintain a constant liquor-to-goods ratio, it is easier to reproduce previous dyeings.

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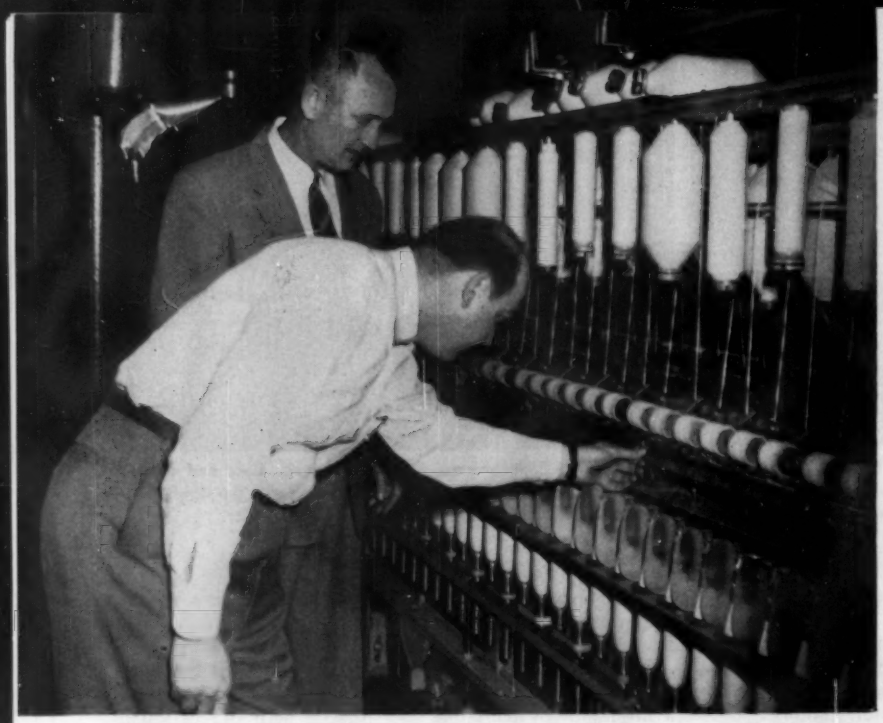
FINAL FINISHING is through a Tubetex machine equipped with overfeed. Steam helps to absorb shrinkage and set the goods to the required width.

CONTROL PANEL carries Foxboro recording controller for becks. The panel at the left carries the kier instrument. Telephone communication with each processing unit enables the dyer to direct the entire operation from his office.



SPINNING FRAMES equipped with overhead and suction cleaners are inspected by General Manager H. M. Brabham (left) and Superintendent W. L. Hamrick. Alma has 104 of these frames in operation.

At Alma Mills—
NEW SPINNING Cuts Costs 31%

Alma Mills, Gaffney, S. C., installed 104 spinning frames last year as part of an over-all modernization program. Results—

- **50% fewer spinning-room operators**
- **40% improvement in evenness**
- **60% fewer ends down**
- **20% higher break factor**

LAST YEAR, Alma Mills, Gaffney, S. C., reduced its spinning-room labor force 50% and cut spinning-labor costs over 31%. These savings resulted primarily from the installation of 104 Roberts 55R High-Draft spinning frames to produce yarn for print cloth.

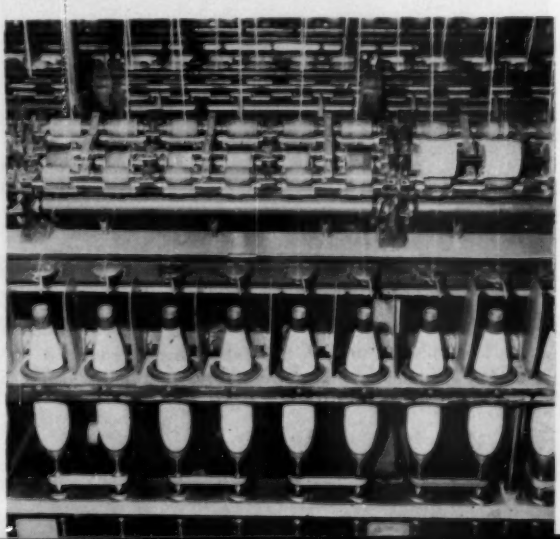
The old conventional-draft frames, which were thrown out, had a total of 30,468 spindles. The frames have 27,128 spindles.

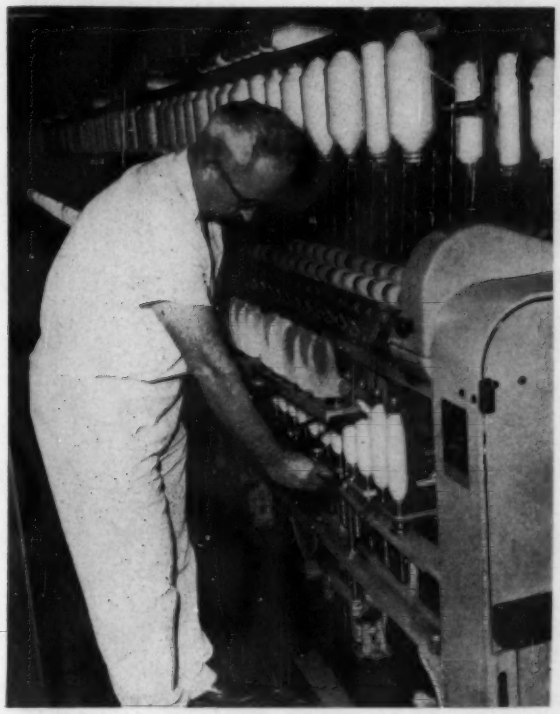
On the old frames, each spinner ran 1,512 spindles. The new work assignment averages 3,012 spindles per spinner. The total number of operators on three shifts was reduced from 133 to 66.5. A detailed breakdown of the labor force before and after the changes were made is shown in the accompanying table.

Front-Roll Speed Is 133 Rpm.

There are 58 3½-in.-gauge frames spinning 30.5s warp yarn on 2-in. rings. An 8½-in. traverse is used to make a 4-oz. bobbin. Travelers are 8-0, twist multiplier 4.60, spindle speed 10,500 rpm., front-roll speed 133 rpm., break draft 1.30, front draft 16.15, and total draft 21.

DRAFTING SYSTEM requires little lubrication. Front stands are lubricated once a week; top rolls and cap bars require no oil at all.





RING RAILS are placed on a bracket instead of on the floor when the lifting rod is cleaned. Second Hand Charles Perry devised the gadget.

SPINNING-FRAME INSTALLATION was accomplished with little loss of production. Spindles shown here are being plumbed, which is done every 12 months.

The 46 filling frames have a 3-in. gauge and spin 41s yarn on 1⅜-in. rings. A 7-in. traverse is used to make a 1.25-oz. bobbin. Travelers are 12-0, twist multiplier 3.80, spindle speed 9,700 rpm., front-roll speed 128 rpm., break draft 1.30, front draft 21.75, and total draft 28.28.

At present, 1.45-hk. roving, made from 1⅛-in. Strict Low Bright Middling cotton, is spun into both warp and filling yarns from a 9x4½-in. package.

Break factor increased from 1,680 to 2,120 after the 55R spinning was installed. Ends down, which formerly averaged 50 to 65 per thousand spindle hours, dropped to 23. Evenness improved about 40%.

Doffing cycle for the spinning is 7½ hrs. for the warp frames and 3½ hrs. for the filling frames. Total number of doffers for each shift was reduced from 10 to 5.

Cleaning time was greatly reduced. Present schedule calls for the rolls to be picked every third day, compared with every other day formerly. Undercarriages are blown off once a day. Parks-Cramer traveling cleaners, open creels, and suction cleaners at the drafting system keep the upper parts of the frame clean. No cleaning hands were added.

Half as Many Oilers Are Used

The ball-bearing spindles and antifriction bearings incorporated in the frames made it possible to reduce total number of oilers from two to one. Spindles are oiled every six months, head ends once a shift with the Bijur system, and steel bottom rolls once a day. Front stands are greased once a week and middle and back stands once a month.

The 55R frames were installed line by line while the mill was running, and very little production was lost. Weave-room production never dropped below 92%; and two weeks after the installation was completed, weave-room efficiency was 96% for the 548 looms in operation.

While the frames were being installed, new flooring was laid in parts of the room and old floors were reworked. Superintendent Wylie L. Hamrick says that Tom Elder, Jr., of Paramount Chemical Co., was especially helpful in this operation.

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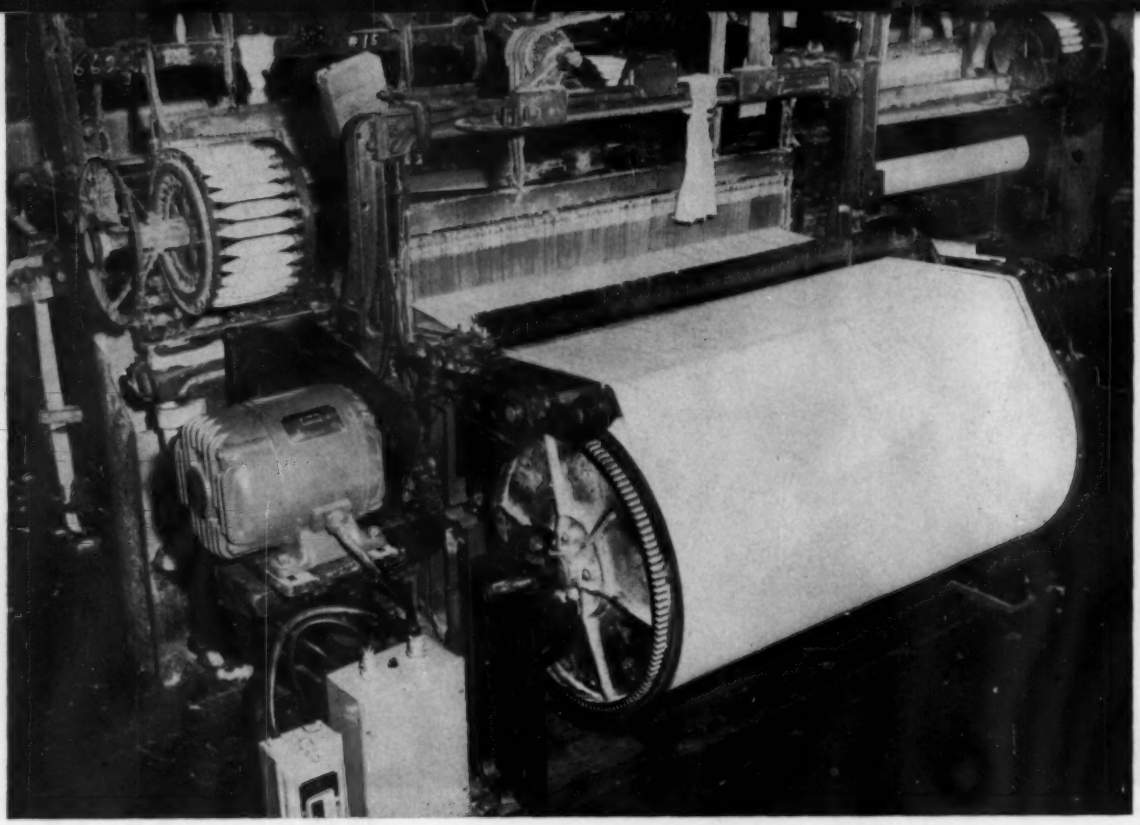
Labor Organization for Spinning (for three shifts)

Operators	Before changes			After changes		
Overseers	1	0	0	1	0	0
Second hands	1	1	1	1	1	1
Section men	4	4	4	2	2	2
Doffers	10	10	10	5	5	5
Spinners	20	20	20	9	9	9
Oilers	1	1	0	1	0	0
Roving haulers	3	3	3	1	1	1
Bobbin haulers	1	1	1	0	0	0
Utility hands	2	2	2	0	0	0
Sweepers	1	0	0	0.5	0	0
Traveler changers	0	0	0	1	0	0
Roll pickers	3	0	0	3	0	0
Tape hands	1	1	1	1	1	1
Overhaulers	0	0	0	3	0	0
Total per shift	48	43	42	28.5	19	19
Total for three shifts			133			66.5

LABOR FORCE in the spinning room was reduced 50%, but direct cost dropped only 31% because of wage increases that took place during the modernization program.



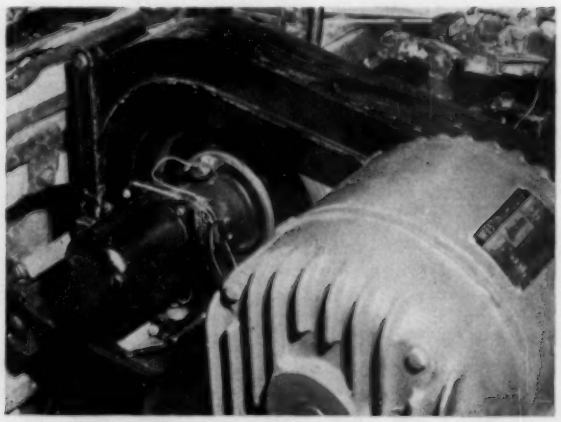
LOOMS are completely rebuilt. This 42-in. E-model loom is producing drill at 178 ppm.

Joanna Mills
RECONDITIONS LOOMS

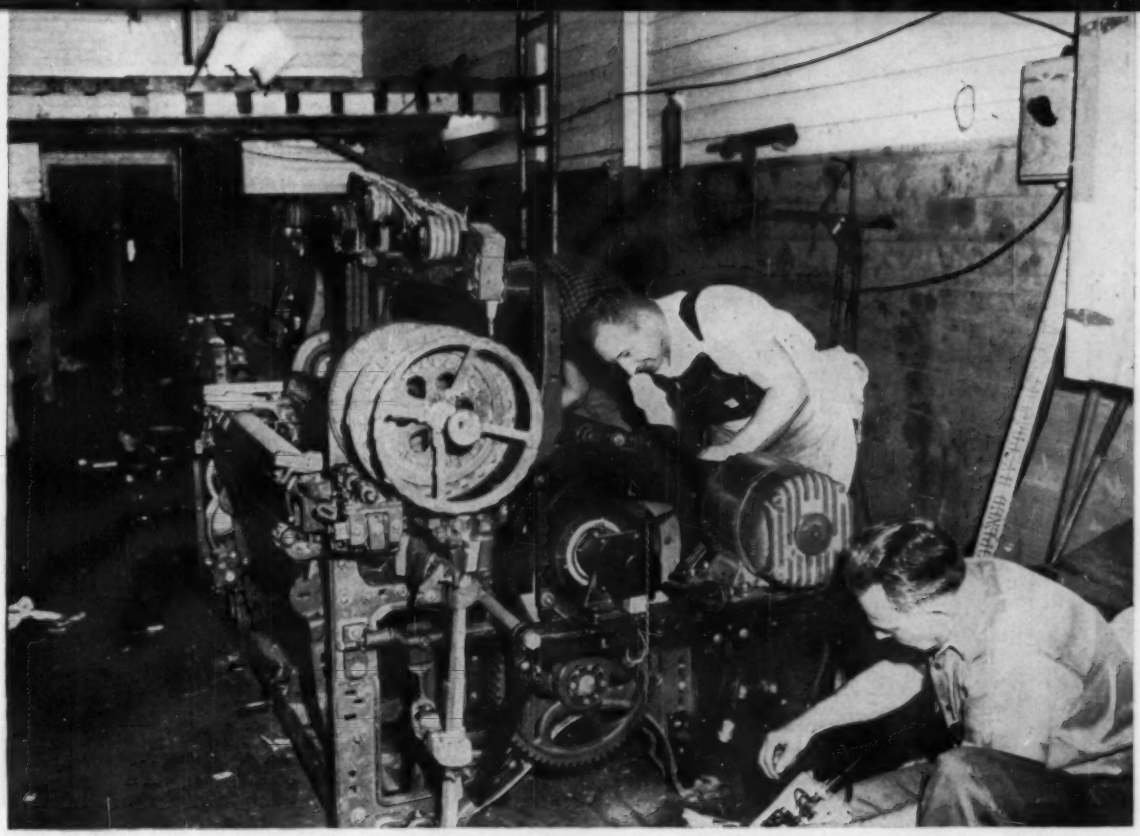
Some E, L, and XL looms are being rebuilt at Joanna Cotton Mills, Joanna, S. C. The looms are being equipped with Warner electric clutch and brake drives. The looms also have—

- Antifriction bearings
- Nylon gears
- Center filling forks

SHIPPER PARTS have been eliminated. Here one of the 90-in. looms is being started with the push-button control.



BRUSH and contact-ring assembly on the loom. These parts were relocated to keep them away from lubricant.



THREE MEN rebuild two looms each week in a room adjacent to Joanna's weave room.

REALIZING THE IMPORTANCE of the driving mechanism on the over-all performance of its looms, Joanna Cotton Mills, Joanna, S. C., did some research on the subject. It found that a small increase in the loom speed would usually cause a big increase in downtime and in maintenance costs.

In its search for a drive that would increase production without creating maintenance problems, the mill tried the Warner electric clutch and brake. After a satisfactory trial, 100 looms are now being equipped with the Warner drives.

Since installing the drives is a major undertaking, the mill decided to take the looms out of production for this work and thoroughly overhaul them. Here's how Joanna is reconditioning the looms:

New Parts Are Installed

The work is done in a small room adjacent to the main weave room, and the loom is almost completely rebuilt with parts from Southeastern Loom & Machine Works. New loomsides and spreaders are installed, and breastbeams and batteries are aligned. Antifriction bearings are used on the crankshaft, rocker shaft, take-up roll, whiproll, whiproll shaft, and for the inside bearings of the camshaft.

The looms are fitted with new gears and cams. Half the gears are made of nylon. The train of gears in the take-up motion is arranged so that a nylon gear meshes with a steel gear and there is no metal-to-metal contact in the entire train.

There is a nylon worm in the Bartlett-type let-off motion and a nylon let-off pinion. Nylon treadle rolls and vibrating cam rolls are also used. The use of these nylon parts eliminates the need of lubrication, and this change not only reduces maintenance costs but also prevents some seconds caused by oil and grease getting on the cloth.

The 42-in. E-model looms that are being rebuilt are also being brought up to date with spring-type crank arms and center filling forks. These looms have high-roll worm take-ups and electric warp stop motions. The looms are producing drills and twills at a speed of 178 ppm.

Some Problems Were Encountered

A number of 82- and 90-in. L- and XL-model looms have also been reconditioned and equipped with the Warner clutch and brake. The work done on these wide looms is similar to that done on the E-model looms except that no antifriction bearings are being installed. The L and XL looms

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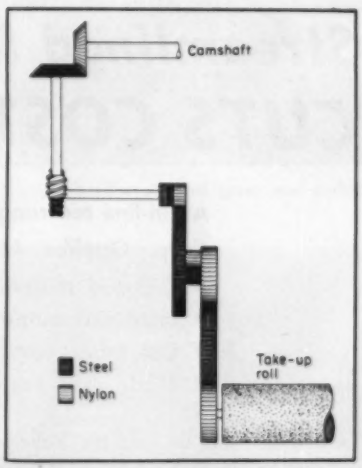
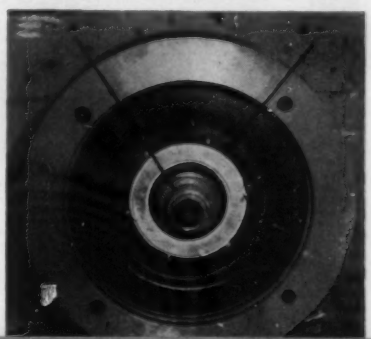
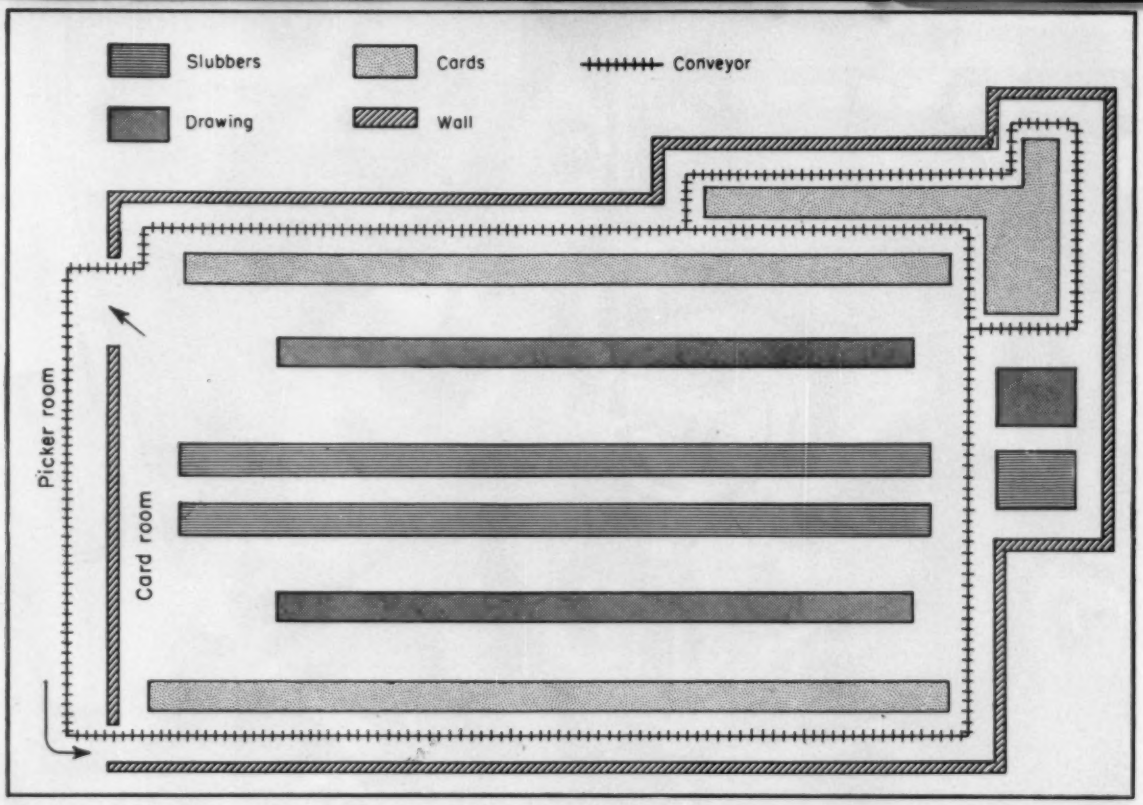


GEARS of the take-up motion of the rebuilt looms are alternately nylon and steel. There is no metal-to-metal contact.

FLYWHEEL shows how the contact ring for energizing the clutch was relocated. (A old, B new).





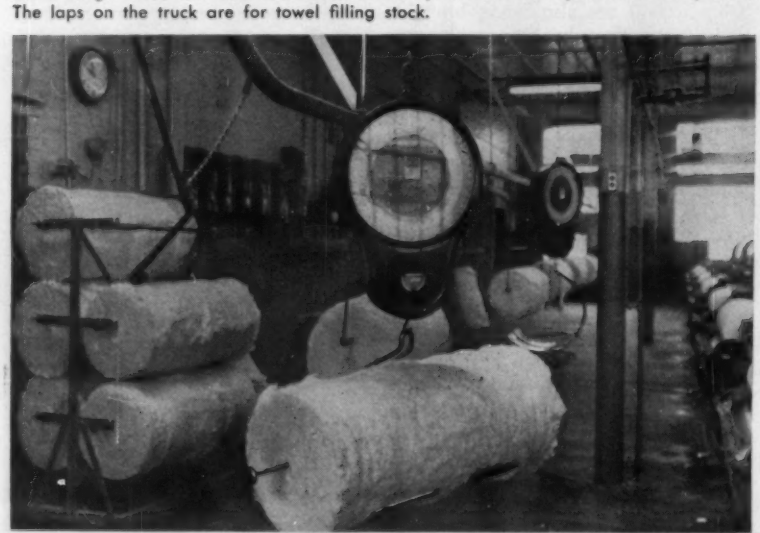
LAYOUT of the card room at Opelika. Entry for laps is shown at lower left-hand corner; roving leaves via door shown at upper left.

Streamlined Machine Layout CUTS COSTS at Opelika

An in-line rearrangement of cards, drawing, and slubbers at Opelika Mfg. Corp., Opelika, Ala., has—

- **Reduced materials handling**
- **Increased output**
- **Cut labor costs**
- **Made jobs easier**

LAPS weigh 48¾ lbs. and are loaded directly on the conveyor from the pickers. The laps on the truck are for towel filling stock.



A REARRANGEMENT OF ITS CARD ROOM MACHINERY has enabled Opelika Mfg. Corp., Opelika, Ala., to increase the number of cards per tender by 50%. But the work is actually easier on the bigger jobs because much of the materials handling has been eliminated.

Formerly, the card tenders pushed laps from the picker room on lap trucks. Keeping their cards supplied with laps took much of the tenders' time. Then they had to push the cans of sliver so far the tenders jokingly referred to this as a trip from Opelika to Auburn. (Auburn is 7 mi. from Opelika).

To reduce the handling of material to a minimum, the cards were

arranged in a single line around the card room. An overhead lap conveyor system was installed to deliver the laps directly to the cards. Two lines of drawing frames were installed parallel to the cards, and the two lines of slubbers were placed in the center of the room.

Laps Are Moved by Conveyor

The machine layout reduces the handling of laps, sliver, and roving to a minimum. Laps are slung on the conveyor in the picker room and carried directly to the card. Filled card-sliver cans are pushed only a few feet from the front of the card to the back of the drawing frame. The drawing sliver comes from the heads just across an aisle from the slubbers. Roving is placed in boxes and pushed to an elevator in the picker room.

An important factor in making Opelika's card-room layout practical is that only two mixes of cotton are used, and one of these mixes is used in small quantities for towel filling. Most of the cotton used is 15/16 in. Strict Low Middling, with fiber from six bales being fed into each of the 14 blending feeders. Two mixes can be run simultaneously by closing off a line composed of two feeders, a condenser, and a gyrator.

Cards Are Placed Single File

The opening room is located on the ground floor directly beneath the picker room. Fiber is drawn through pipes to a condenser in the picker room, into gyrators, and then through blenders, vertical openers, air cleaners, a condenser, duplex gyrators, and to pickers.

The three-beater Saco-Lowell pickers have been rebuilt by Aldrich Machine Works. Each of the eight pickers produces a 48¾-lb. 15-oz.-per-yd. lap every 8 mins.

The 166 cards are placed in single file around the room with the exception of some in the south end. The cards produce 61-grain sliver at 14½ lbs. per hr. Each tender operates 36 cards. Before the cards were rearranged and the lap conveyor installed, the job-load was 24 cards per tender and the output was only 12 lbs. per hr.

The 184 deliveries of the one-process drawing frames produce 62-grain sliver. The drawing heads have two metallic and two rubber rolls over four metallic rolls. The 16 slubbers produce 1-hk. roving for general use and a small quantity of 0.65-hk. roving for towel filling.

With the exception of finishing, the Opelika plant is a fully integrated producer of towels, aprons, tablecloths,

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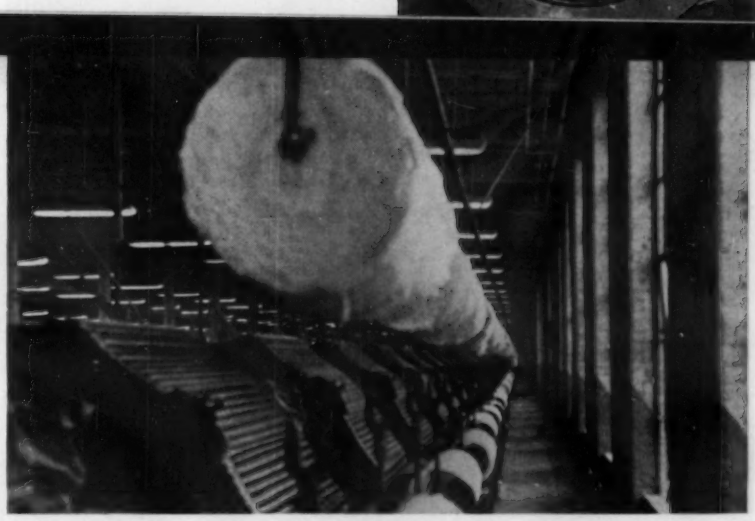
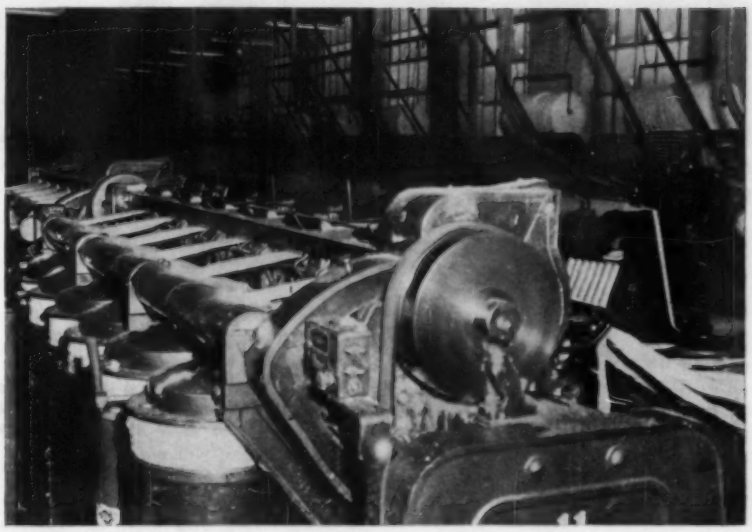


CONVEYOR circles the room and delivers laps directly to the cards. Only two cotton mixes are used for all the mill's production.



DRAWING is located parallel to the cards, and the cans of card sliver are pushed across the aisle from card to drawing frame.

SLUBBERS are in the center of the room. Cans of sliver are stored in the open areas, and the boxes of roving are pushed to an elevator.

MOISTURE IN GOODS going into a glazed-chintz finish is checked by Boss Finisher Frank Waring. Correct moisture content helps gloss and durability of these finishes.

How Pontiac Produces Uniform RESIN FINISHES

Fruit of the Loom's Pontiac Finishing Plant, Pontiac, R. I., nailed down a source of varying resin finishes when it installed an automatic moisture-control unit on the treating tenter. Now it gets—

- **Uniform resin finishes**
- **Best possible tenter production**

ONE OF THE LAST OBSTACLES to uniform resin finishing has been overcome at Fruit of the Loom's Pontiac Finishing Plant. The obstacle was variations in moisture content after applying resin and before calendering—a condition that has plagued finishers for some time.

The old brush sprinkler worked very well in restoring moisture to starch-and-oil finishes but produced little or no effect on dried-out resin finishes. The reason is that resins make cotton hydrophobic, and when once completely dried the cotton will not readily pick up added moisture.

Another undesirable feature of overdrying is that partial curing of the resin occurs, and the effect of the subsequent calendering is lessened. In permanent-glaze finishes, overdrying before calendering seriously interferes with the glaze and its durability.

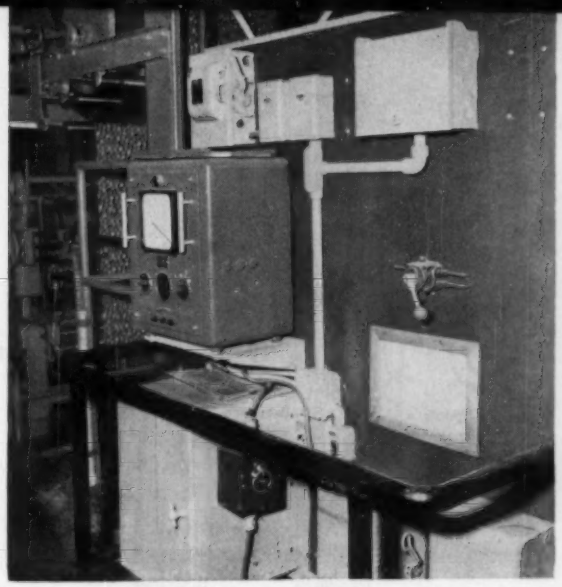
Guesswork Didn't Do

Pontiac soon found that even close supervision of dependable operators was insufficient to insure just the right moisture content for the various resin finishes being produced. The plant found that experienced hands could not always detect variations of 1 to 2% in moisture content simply by feeling the goods as they came off the treating tenter, and a variation in that range could cause finish irregularity.

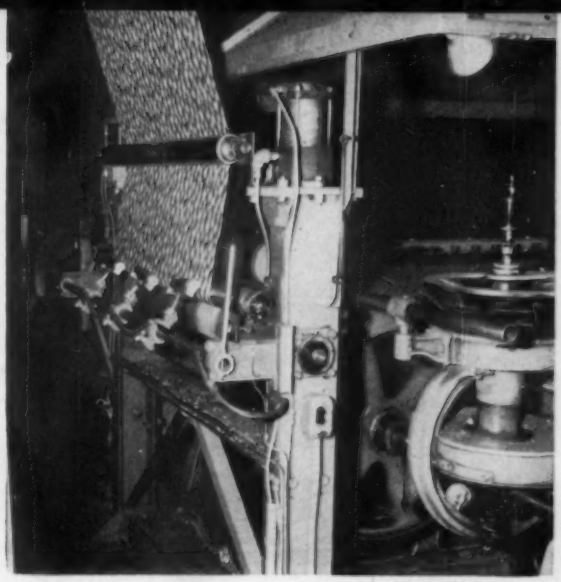
So Pontiac bought and installed a Hunter Electro-Psychrometer moisture-control unit for its primary resin-treating range. The controller employs both the resistance and capacitance of fabric-moisture systems to indicate or control the moisture content of fabric passing through the frame.

The controller checks moisture at the edges and center of the goods through three rollers mounted at the delivery end of the tenter. The controller responds to the signals received from the area carrying the most moisture.

Two ranges of sensitivity are provided in the instrument to take care of a wide variation in the required moisture content of the fabrics. One range gives mid-dial readings in the 1 to 7% range. A less-sensitive cir-



HUNTER ELECTRO-PSYCHROMETER is the heart of Pontiac's resin-finishing tenter. Two principal ranges of sensitivity with several intermediate stages in each range provide ample adjustment to handle a variety of fabrics and finishes.



SENSING ROLLS check moisture content at each edge and at the center of fabric coming off the finishing tenter. Tenter speed is automatically adjusted by the controller to produce fabric with the required moisture content.

cuit handles moisture contents in the 7 to 20% range without extreme-scale readings on the dial.

Once set up for a given fabric and finish, the control gives duplicatable results consistently.

One Fabric, Many Effects

Pontiac's largest production is 80-square fabric printed in fast colors, including vats, naphthols, and Rapidogen-type dyes. Goods marketed under the Fruit of the Loom label must conform to high standards of light- and washfastness. Other lines are printed or dyed to the customer's specifications.

The real need for rigid control in finishing came about with the development of a number of resin finishes for cotton. Some are calendered on a plain rolling calender hooked up in tandem with the finishing tenter. Others are Schreinered or friction calendered.

All require various degrees of residual moisture before calendering if the maximum effect of the resin is to be realized. Whatever effect the calendering has on the fabric will be durably retained in the goods after curing if the moisture content was right in the first place.

As an example, a wrinkle-resistant finish on a cotton dress-goods print will be resin-treated to carry 6 to 6½% of a modified urea- or melamine-formaldehyde resin, dried on the controlled tenter to a 7% moisture content and calendered in tandem on a five-roll rolling calender.

CONTINUED ON PAGE 206

SEPARATE CALENDERING on a six-bowl rolling calender is aided by a little extra moisture from a low-pressure steam line. Over-dried resin finishes would not benefit much by this treatment.

CALENDER is synchronized with the tenter frame and is used for a large part of Pontiac's resin-finished cottons. This type of setup is very practical for long runs.

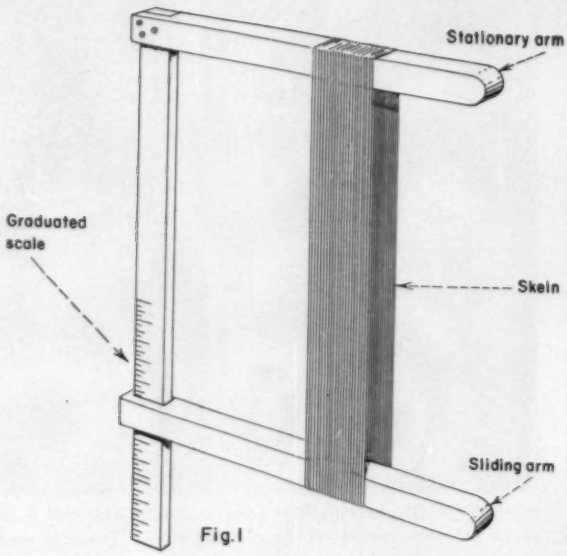


Fig.1

APPARATUS for measuring the inside circumference of a skein has a sliding arm that is pulled down until the yarn is taut. A direct reading is then made on the scale.

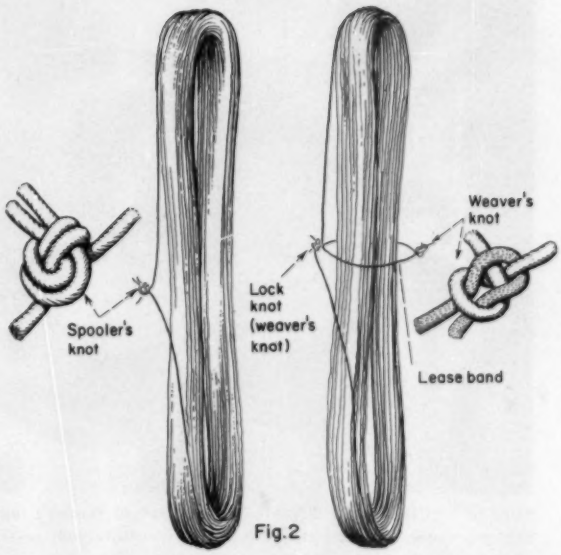


Fig.2

LOCK KNOT gives skeins added security against rough handling during wet processing. Lease cannot slip off. A weaver's knot is usually used.

Pointers on Reeling Better COTTON PLY YARN

Good reeling depends on putting the proper number of yards in each skein and seeing that each lot of skeins has the same circumference. To make good skeins, watch out for—

- **Improperly tied lease and tally bands**
- **Grooved yarn guides**
- **Wrong kind of yarn guides**
- **Too much tension**

By FRANK VOGEL, Quality-Control Consultant

COTTON PLY YARNS can be efficiently reeled for dyeing, bleaching, or mercerizing if a close watch is kept for factors that cause bad reeling.

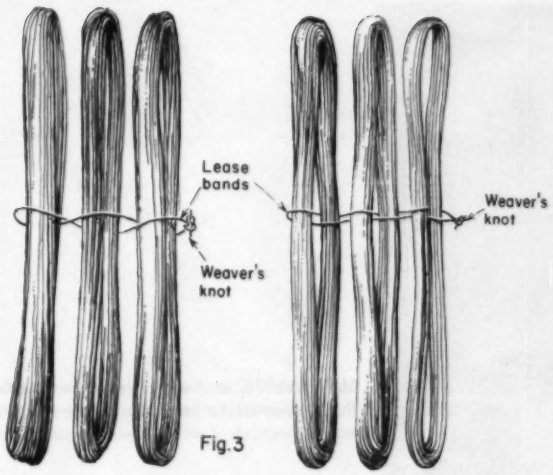
The first thing to remember is that in reeling from twister bobbins, the entire length of yarn on the bobbin is formed into a skein. It is assumed that the yarn in each skein will be of equal length and weight, but frequently there are slight differences from skein to skein. Such differences can cause uneven processing.

If the skeins have to be of definite length and weight, such as for mercerizing, it is essential that the creels behind the reels be of the large-package type and that the reels stop automatically when a predetermined length of yarn has been reeled.

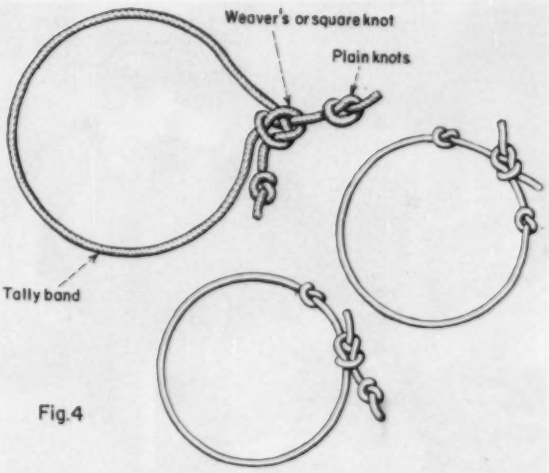
Skeins for mercerizing must be as nearly equal in circumference as it is possible to make them because of potential breakage of ends at the mercerizing machine. Breaks, caused by stretching in the mercerizing machine, will appear in skeins that are slightly shorter than standard.

To make certain that the skeins are uniform, the reels should be measured in three places: a foot from each end and in the middle. Variation should be kept within a tolerance of $\pm \frac{1}{16}$ in.; and any variation greater than this should be corrected immediately. Reels should be checked every week or two. It is a good idea to face that portion of the staves on which the yarn rests with a hard surface. Maple is useful for this purpose because it withstands indentations that might affect the skein circumference.

As a further check on the uniformity of the skeins for mercerizing, it is



SKEINS are normally tied as shown on the left, but in some instances the thread is passed through the center of the skein to give added protection against tangling.



TALLY BANDS around skeins can be knotted for identification on the tails or on the band proper or on both. Tally knots are ordinary knots; bands are tied with a weaver's or square knot.

well to measure an occasional skein to find its exact circumference. A measuring device can be made as shown in Fig. 1. The apparatus is composed of two arms and a graduated scale. One arm slides along the scale and indicates the circumference of the inner portion of the skein.

A few skeins, measured once a week from each reel, will give an idea of the evenness of the skeins going to the mercerizing machines. Any extremes should be checked immediately.

Another point to watch is the back-and-forth movement of the traverse guide rod on the reel. Proper traversing action is especially important if the skeins have to be split for removal of faulty portions, either in the gray or after dyeing and bleaching.

A little experimentation may be necessary to determine the best ratio of the traverse rod to the revolutions of the reel. Cross reeling is the best type of reeling for good-handling skeins in subsequent operations.

Use Weaver's Knot To Tie Skeins

During the reeling of any yarn, an end breaks occasionally and a knot has to be tied. If the yarn is being reeled for dyeing, an ordinary spooler knot can be tied. If the reeling is for mercerizing, a weaver's knot must be used; otherwise, the knot might slip under the strain of the mercerizing process and cause trouble after dyeing or bleaching.

One mill that annually processes many thousands of pounds of skein yarn found that many within-skein entanglements appeared after wet processing because of the way the first and last ends of the skeins were tied. After some research work, it was decided to add what was termed a "lock knot".

The ordinary method and the lock knot method of tying ends are shown in Fig. 2. Although use of the lock knot increased the cost of reeling somewhat, the benefits derived from it warranted the additional labor cost.

Leasing Must Be Secure

Lease bands for holding skeins under control during wet processing are necessary to prevent entanglement. A question sometimes arises: Should the lease bands encircle each of the skeins in a group of skeins, or should the lease be passed through the center of each skein in a sort of figure eight for additional security? The two methods are illustrated in Fig. 3.

Both systems work well in certain cases; and if the first method gives adequate anchorage, then it should be used by all means because the second method takes longer to tie. The thing to bear in mind is that the lease band must keep the skeins in place. In some instances, it is necessary to use two or more lease bands to keep the skeins in good shape for the next process.

For better handling in the various operations after reeling, several skeins are usually fastened together in a group. The number of skeins per group depends on the size of the individual skein.

It is imperative that some means of identification be used for individual numbers or classes of work. A tally band can be used very satisfactorily for this purpose.

A system of knots is tied in the tally band, based on a master chart located near the reelers. The knots can be on the tails of the bands, on the band proper, or on both, as shown in Fig. 4.

A point to watch in using any band, whether lease or tally, is its length. A band that is too long will cause trouble by entangling with skeins in a neighboring group, or it may slide up on the skeins in their own group.

On the other hand, bands that are too short and tight, whether originally tied too tight or tightened by shrinkage, prevent dye and chemicals from penetrating the yarn. A partially dyed strip is the result.

Yarn Cuts Round Guide

The shape of the guide on the traverse rod is an important item. A round guide eye is not satisfactory because there is a tendency for the yarn to cut a groove in the upper portion of the guide. Grooves can be cut in the lower part, too.

The reason is that on long twister bobbins an acute angle is formed by the yarn when it is at the top of the bobbin. This angle increases the friction of the yarn against the guide. The continuous contact of the yarn with the inner top of the guide wears a groove, which eventually become deep enough to catch and hold the yarn whenever a thick slub appears.

CONTINUED ON PAGE 210

SUPERVISORS at Indian Head work with the employees to keep the looms in top-notch mechanical condition.

How Indian Head Keeps QUALITY High

Indian Head Mills, Cordova, Ala., guarantees the quality of its fabrics to the consumer. To maintain the high standards of weaving necessary to back this guarantee, the mill—

- **Keeps its looms up to date**
- **Uses selective hiring methods**
- **Stresses correct training of employees**

INDIAN HEAD MILLS, Cordova, Ala., claims the distinction of having the oldest established fabric brand name in the United States. It backs up the quality of Indian Head fabrics with a guarantee that goes far beyond that of most manufacturers.

POINT SYSTEM is used to establish workload of many jobs, such as filling batteries, weaving, etc.

In part, the guarantee states that if, for any reason, a garment made of Indian Head cloth proves unsatisfactory because of a fault in the fabric, the entire garment will be replaced by Indian Head Mills.

To be able to offer such an all-inclusive written guarantee, the mill has to stress quality in all phases of production. The importance of good quality is especially emphasized in the weave rooms.

The mill has 885 E- and X-2-model looms of 40- to 60-in. width. The E-model looms have boss roll and Dwight spring tops, Roper let-off motions, and high-roll worm take-ups; 266 of the E-model looms have electrical warp top motions and the rest have mechanical stop motions.

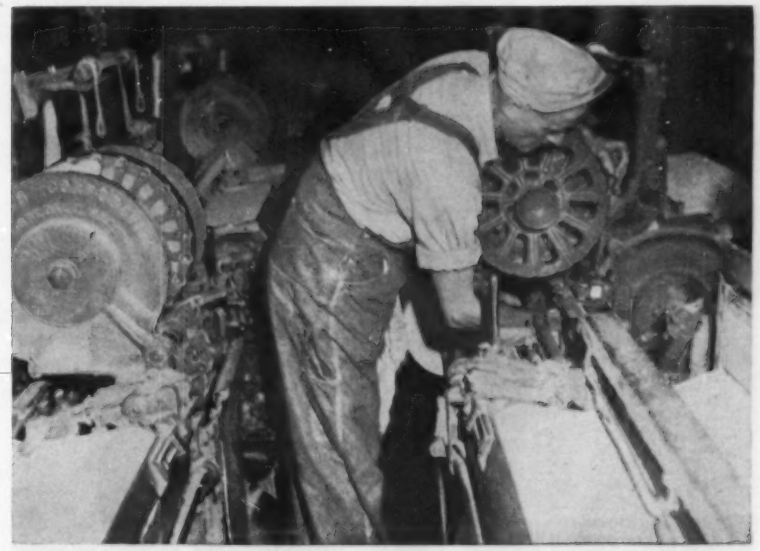
The Mill Likes Its Diehl Drives

The X-2 looms have Diehl power transmitters and Brown spring tops. These looms are equipped with a high-roll ratchet take-up and Bartlett let-off. They have electrical warp stop motions. The looms operate at speeds of 160 to 171 ppm, depending on the width of the loom.

All the E-model looms have 20-in.-dia. beam heads, and the X-2 looms have 26-in.-dia. heads. Patterns are tied off the looms by stationary tying machines located in the drawing-in room.

The X-2 looms have center filling forks; the E-model looms have side forks. All looms are equipped with midget feelers and Stafford thread cutters.

Indian Head weaving supervisors and loomfixers like the Diehl power transmitters. They say the units are



LOOMS are checked periodically and preventive-maintenance methods are used to keep them running.

almost trouble-free, and the sensitive control and brake helps protect the loom from damage caused by sudden stops.

The transmitter gears are checked every three months for wear. To distribute wear evenly, the gears are turned every six months. The transmitter gears in this mill can be adjusted to eight different positions; most such gears are adjustable to only four positions.

Job Applicants Are Given Tests

Preventive maintenance is practiced to keep the looms in good operating condition. Each loom is thoroughly cleaned periodically at warp-out, and the various loom parts and settings are checked.

The weave room has a Bahnson Humiduct air-changing system; a relative humidity of 86 to 88% is maintained. The standard temperature is 80° F.

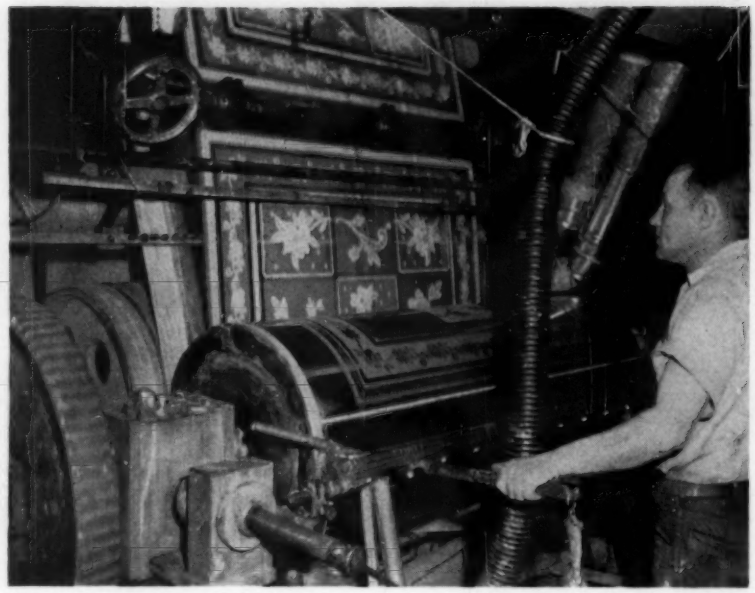
Cloth woven includes flannels, bag goods, muslins, sheetings, drills, sateens, linings, dress fabrics, and rug backing. Indian Head All-Purpose cloth is an old established product.

Cordova is off the beaten path of most experienced textile job-hunters; so Indian Head Mills hires most of its workers from local applicants and trains them on the job.

A simple aptitude test is given all applicants before they are hired. Testing the dexterity of applicants for jobs such as spinning, weaving, and filling batteries has resulted in more-efficient employees on these jobs. Also, the time and cost required for training employees for these jobs has been greatly reduced by the screening tests.

Jobloads in the weave room are laid out by the point system. Each individual loom has an established number of points for each type of fabric. When styles are changed, enough points are added or subtracted to bring the number to 100%. The units needed for the necessary points establish the number of looms and the base pay for the job.

DEXTERITY is a major requirement for weavers and others. Aptitude tests help screen job applicants.



TABLECLOTH PATTERN in gold and black is being run on this machine. The flexible hose delivers hot air to the film to dry the black portion being printed from roller below picture.

How Velveray Prints and Finishes VINYL LAMINATES

Velveray Corp., Clifton, N. J., prints vinyl and polyethylene films in both self-supported and laminated types. Finishing methods on these materials differ principally from all-fabric materials in—

- **Lower cylinder-printing-roll pressures**
- **Type of engraving**
- **Type of colors used**
- **Printing-machine design**
- **Embossing methods**

Velveray Corp., Clifton, N. J., uses a combination of cotton- and paper-printing techniques to produce up to 12 colors on vinyl and polyethylene films.

The colors are applied from rollers engraved by a gravure process. Because the films are nonabsorptive, engravings are shallower than those produced for fabric printing.

As many as three depths of color per roll are produced by varying the depth of engraving in steps called full-tone, half-tone, and quarter-tone.

The colors used to print films are pigments dispersed in resins compatible with the films to be printed. Similar to printing inks, they are formulated to dry quickly, cover thoroughly, and have low crocking tendencies.

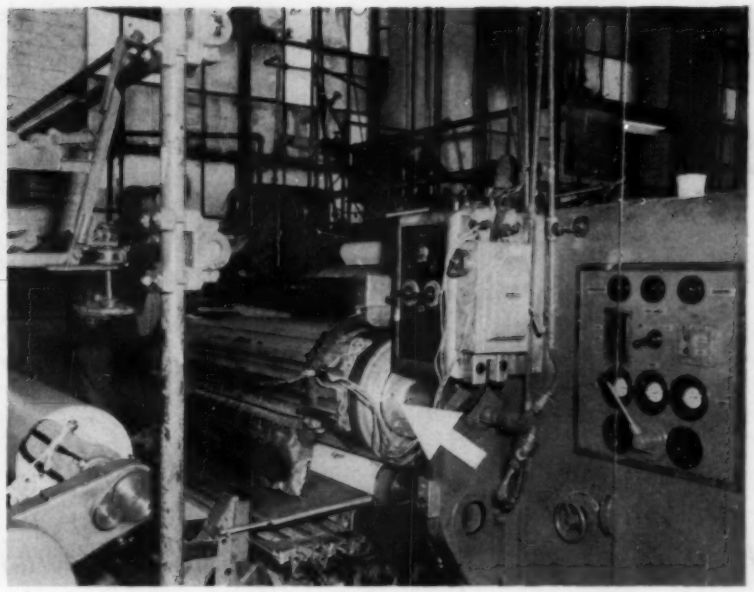
Printing-machine design is roughly similar to that used for cotton printing in that the film is led over a blanketed cylinder between printing rolls mounted around the cylinder. But there are important differences in the cylinder-print-roll pressures used, the spacing of the print rolls, and the method of adjusting pattern fit.

The printing machines are also equipped with hot-air ducts that direct streams of hot air against the film as it leaves each printing roll. This preliminary drying is necessary to prevent markoff of color from one print roll to the next in line.

Less Roll Pressure Used

Pressures are less between the cylinder and print roll because the color application is strictly a surface effect and there is no need to try to drive color into the film, as is necessary in fabric printing. Also, the film is often as thin as 1½ mils and could not stand heavy pressures.

There is considerably greater space between print-roll stations in a film-printing machine than there is on a conventional cotton-printing machine. One reason is the large repeats necessary for many vinyl-film patterns—up to 90 ins. Another reason is that the longer travel between print rolls gives more time for the inks to dry and



EMBOSSING VINYL FILMS requires carefully controlled heat and pressure. The film is led over the steam-heated cylinder (arrow) and under the radiant heaters mounted over it.

gives space for the dryer nozzles.

After the film leaves the printing machine, it is guided into a single-pass dryer that carries about 30 yds. of film and is heated to about 180° F.

The film is wound up directly from the dryer as fast as it is produced from the printing machine. The processing is complete for self-supported film except for final examination and tubing to customers' specifications.

Backing Adds Strength

Much vinyl and polyethylene film is laminated with cotton to produce fabric for table covers and garment bags or is laminated with nylon for such uses as tarpaulins and mail sacks.

In the case of decorative materials of any type, the films are printed before laminating.

To laminate a plastic film to a fabric back, two methods are used, both involving heat and pressure. The very thin films from 1½ to 4 mils thick are given a coating of adhesive just before the film and backing fabric enter the laminating calender. The process is continuous; film and backing are fed from separate rolls and merge at the heated nip of the calender rolls. The thin films require the adhesive so that less heat and pressure can be used to produce a good bond between film and backing.

Thicker films, from 5 to 20 mils, can be laminated directly to the backing because the heavier film is rugged enough to stand semiplasticization without actual deterioration.

Embossing Upgrades Product

Many heavy vinyl films and vinyl-fabric laminates are embossed to

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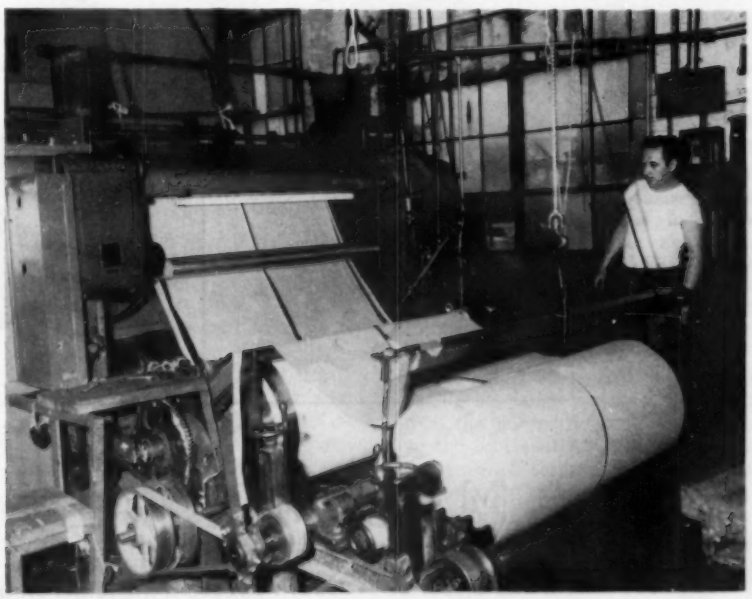
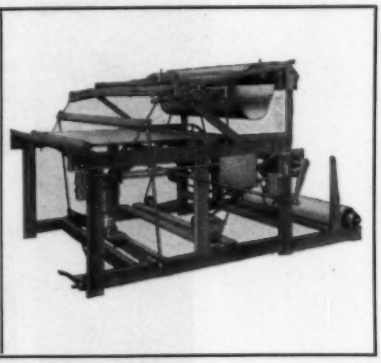


SLITTING AND TRIMMING after embossing complete the finishing operation on this wall covering. A similar machine can be set up to laminate and emboss in one run. Wall coverings have become an important part of Velveray's production.

HIGH PILE NAPPER

For looped knitted goods used for linings and simulated fur fabrics. Better finishing results with fewer operations



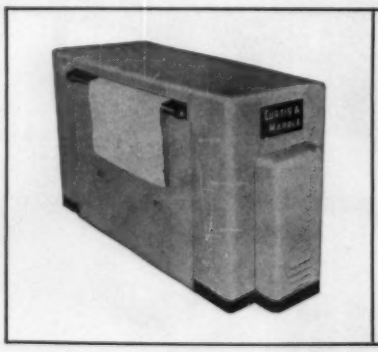
M-125 CLOTH FOLDER

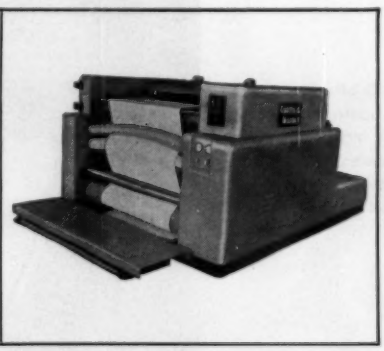
Less floor space; less moving parts with new electro-dynamic brake. Up to 8" drop plus power unrolling

Your alertness to the technological advances made in our textile machinery helps you to keep ahead of competition. New Curtis & Marble cloth finishing machines give you more production per man hour—better quality finishing. Our suggestions often improve cloth room operation and thus strengthen your competitive position. A talk with us could prove mighty profitable to your mill.

M-125 BRUSHER

Better brushing at higher speeds and companion machine to M-125 Shear. 8 interchangeable cylinders completely encased





M-125 SHEAR

Most advanced Shear design in years for cottons. Gives top quality shearing at higher speeds. Reduces maintenance and operational costs

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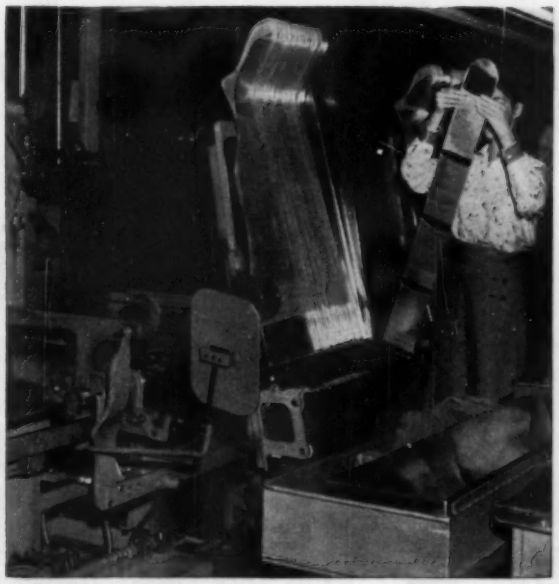
SIX FORMS are automatically brought forward for stripping, and five forms return after an interval of 7 secs. Production has been increased about 25%.



ONE FORM comes forward at a time for dressing. Here swatch fabrics are being boarded on special forms. The forms are controlled from the rocker arms.

Bear Brand Speeds HOSIERY BOARDING—

—with automatic controls on horizontal boarding machines that have increased boarding production from 110 doz. pairs per 8-hr. shift to 136 doz. pairs per 8-hr. shift.

BY REBUILDING its Paramount horizontal boarding machines, Bear Brand Hosiery Co., Kankakee, Ill., has increased its finished boarding production of woman's hosiery. The average production per operator has been increased from 110 doz. pairs per 8-hr. shift to 136 doz. pairs per 8-hr. shift.

An automatic carriage and form actuator, supplied by Paramount Textile Machinery Co., was added to make the boarding operation more automatic. The actuator brings the forms forward for dressing and stripping.

Six Forms Are Stripped

At the start of the cycle, the first six forms on the right-hand side automatically move forward to be stripped. Six stockings are stripped from these forms in one movement by the operator. These stockings are laid on boards on a table in front of the machine.

This operation is automatically timed and 7 secs. are allowed for this job. Five of the forms then move back to their original position. A stocking is drawn on the other form, which then automatically returns to its original position.

A second empty form then automatically comes forward to allow another stocking to be drawn on it. Each form is brought forward at intervals of 3.5 secs. until all six forms have been dressed.

The second six forms then move forward in a body and the process is repeated. When all 24 forms have been stripped and dressed, the operator touches a foot switch to move the carriage into position to go into the retort.

The stockings remain in the retort for 45 secs. after the temperature has raised to 240° F. A fan has been placed under the front of the retort to rapidly cool the stockings as they come from the retort.

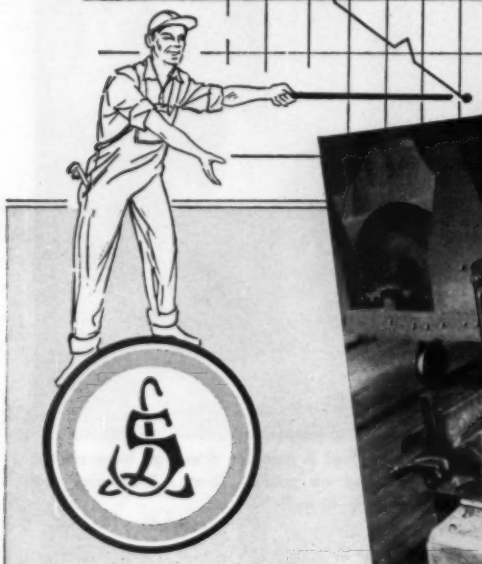
Fan Cools Stockings

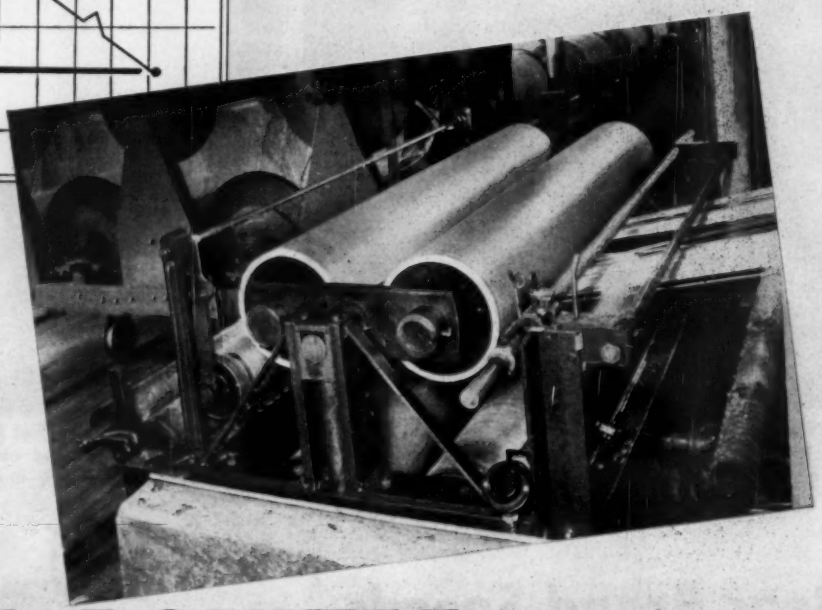
This fan is wired to another fan at the back of the retort to help dry and cool the stockings. Both fans are switched on simultaneously from the automatic controls.

If the operator makes an error in putting stockings on the forms, she stops the automatic cycle by touching the foot switch. A second touch of the switch restarts the cycle when the error has been corrected.

The forms are operated from rocker arms that get their movement from a camshaft slowly driven through two speed reducers and a clutch.

LOWER SLASHER ROLL MAINTENANCE...





SACO-LOWELL

MULTI-DURO SLASHER SQUEEZE ROLLS

Now you can eliminate constant and costly maintenance of blanket-covered and yarn-wound slasher rolls. The seamless, graduated hardness rubber covering, specially developed for slasher use by Saco-Lowell and U. S. Rubber Co., permits the Multi-Duro Roll to operate satisfactorily for at least two years without buffing.

In addition, the Saco-Lowell Multi-Duro Slasher Roll helps produce superior quality warps because:

- the variable-hardness construction of the rubber permits a constant, even size application.
- A well rounded layer of size is applied on each end individually — shedding in the weave room is thereby minimized.
- Roll is made of special rubber, which, given reasonable care when not in use, will not harden, chip or form blisters at any time.
- There is no lateral seam to cause size roll marks on sunken places across the yarn sheet.
- Rebuffing is not required for at least two years if the roll is given normal use and care.

The Saco-Lowell Multi-Duro Slasher Roll is unquestionably the best slasher finisher roll available today. It is not a conventional roll — do not be misled into accepting a substitute. The Multi-Duro Roll leads to quality slashing and more efficient weaving. Continued evidence that it "Pays to Use Genuine Saco-Lowell Repair Parts".

SACO-LOWELL

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD and SACO, MAINE; and SANFORD, N. C.

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Keep Questions From Becoming Problems

- A lot of the problems you face are built into the job and can't be avoided, but there are others you make for yourself when you fail to say or do the right thing at the right time
- To prevent some of the problems that don't need to happen, try these suggestions for dealing with employees' questions

By **M. A. CROSS,** Director of Industrial Relations, Dan River Mills, Inc.

It's sometimes surprising how quickly an apparently simple question can boil up into a complicated problem. An employee question gone unanswered becomes a complaint and then acquires formalized status as a grievance (at least in organized plants). Before long, everybody becomes so concerned with defending a position on the grievance that the original question is forgotten. So often then the issue becomes not what is right but who is right, a complication that adds to the difficulty of working out the problem.

There is a better approach—one aimed at dealing with the question before it assumes the complexity of a problem. Here are some of the ingredients of this more wholesome approach.

1. Know Your Policies—or Your Contract

Recently I attended a meeting of management representatives from various companies at which a speaker made the point that consistency in employee relations is a positive virtue. He maintained that employees accept mediocre policies and practices consistently applied in preference to good policies applied without any consistency and variously interpreted at different times.

In the former situation, they know what to expect and acquire a certain security from the knowledge; in the latter, they are bewildered as to what may happen and insecurity results, no matter how good the intentions may be.

Whether you agree with this speaker's observation or not, it does emphasize the importance not only of having policies but also of knowing them and understanding them so that you can apply them consistently.

As a supervisor, you should make it your business to become well informed about company policies and practices that affect your relations with subordinate employees. With this knowledge, you are better able to make the right decisions and decisions that are consistent with what employees have learned to expect. This approach will tend to minimize questions arising because your actions are not understood.

On the other hand, if you are not informed on company policies and act in each situation according to the circumstances as you see them, employees will logically question your decisions and ask you to justify them. This can well be the point at which a question blossoms into a problem.

2. Answer Questions Promptly—and Definitely

When questions do arise—and inevitably they will, no matter how skilled your administration—try conscientiously to answer them promptly. Without an answer or with one too long delayed, the question may rankle and fester into a real, live grievance. The prompt answer enlightens and reassures the employee that you know what you're doing and are concerned that he understands what you're doing.

Go one step further. Try to give a definite answer, one that is, in fact, an answer to the question. To say that you are "following policy" or "That's the word from upstairs" is an answer, but it is not definite. It doesn't tell the employee very much and doesn't satisfy his urge to get an understanding of the action you have taken. Actually, it may leave him in the frame of mind that he feels he must press for a better answer, and again you have fertile ground for sowing the seeds of a complicated grievance.

3. Anticipate Upcoming Problems

This point repeats a measure urged in discussing many problems of supervisors. Planning is at the heart of management, and anticipation of what may arise in the future is at the heart of planning.

As changes take place in the normal routine, you, as supervisor, are in a position to gauge what impact they will have on your employee group. Having sized this up, you can judge how you can best handle the situation within the framework of company policy. You can plan your moves, your timing, and your explanations in such a way that you keep at a minimum the questions that will arise. And having anticipated the problems and worked out the manner in which they will be met, you are in a sounder position to answer any questions that are presented to you.

Fail to anticipate upcoming problems, and you may

CONTINUED ON PAGE 159

First high speed gill box for worsteds, synthetics, & blends with draft alterations by gear shift levers

NO MORE CHANGE GEARS!

For the first time in this type of machinery changing of gears is eliminated for draft adjustments. Immediate and accurate changes are obtained by setting two gear shift levers. This new high speed intersecting gill has been designed to produce quality sliver for the abbreviated system of spinning. ***Delivery*** into one, two or three cans or bi-coil into two cans, with either ball or can creel, allows versatile arrangement of machines for balanced production. ***New weighting system*** with patented single-spring action is efficient and simple. ***The head*** is engineered for high operating speeds with patented triple-thread screws and special fallers for increased strength, trouble-free operation and lower maintenance cost. ***Stop motions*** with different indicating lights give immediate action when a sliver is missing at either the feed or delivery end, in case of lapping in the drafting unit or in the coilers and if a faller pin comes in contact with the plate protecting the top roller. ***Neat enclosure*** with flush mounting of control buttons and yardage stop-motion keeps machines clean. *Please write for our illustrated brochure.*

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POINTERS FOR SUPERVISORS

CONTINUED FROM PAGE 157

have trouble on your hands. You may find yourself in a position where you must act quickly and without proper consideration of the effect of your actions. You may make decisions based on the expediency of the moment. If you are questioned, your attitude may be a defensive one, and for that reason you may be resentful of the question and short in your answer. If that is so, then you have set the stage for converting the question to a grievance.

4. Inform Employees About Changes and the Reasons for Them

Not too long ago an article in one of the leading business publications reviewed half humorously, the importance of perquisites in the top-executive business life. The article pointed out that some companies had gone to the extent of defining office size for various executive levels, the level in the organization that entitled an executive to a rug in his office, and the exact point at which he could have a private secretary, rather than a stenographer working for several people. It was further noted that if these conditions for a particular executive were changed—if he were moved to a smaller office, for example, with no rug—then he figured he was on the way out and insecurity grew apace.

This point is not raised to poke fun at the perquisites of business executives. Rather, it is to point out that everyone in the organization, from top to bottom, clings to certain concepts of his own position. Disturb those concepts, and you disturb the individuals affected.

Put another way, changes in the established pattern are a source of concern. This fact applies to you and to me and to all our associates.

It is a point always to keep before you as a reminder of the absolute necessity to tell people about changes in their job situations and to tell them why the changes were made.

5. Keep Tuned to the Employees' Wave Length

Some companies make it a regular practice to have outside professional organizations survey employees as to their opinions about various company programs. The objective of such surveys generally is to establish not only how well informed employees are concerning the company's program but also how well the programs are operating and how they might be improved.

It is a planned, objective approach to find out what employees have on their minds so that positive action can be taken on corrective measures, where needed, before trouble develops. It is one way of finding out the questions that are bothering employees, a way of anticipating upcoming problems.

As supervisor, it will be helpful for you to keep tuned to the employees' wave length so you can hear what is on their minds and sense the questions they have about conditions on their jobs.

If your timing is accurate, you will receive the information soon enough to plan your actions so that their questions will be answered before they assume more serious proportions.

WHAT OVERSEERS EXPECT OF SECOND HANDS

CONTINUED FROM PAGE 105

OVERSEER A: Well, sometimes a second hand will fail because of his outside activities. If he doesn't stay morally clean he can't keep the respect of his people on the job.

OVERSEER C: If a second hand doesn't use good judgment in his outside activities some of the employees will accuse him of showing partiality. Whether or not this is true, it can impair his effectiveness on the job.

OVERSEER D: A second hand can be put on the spot if he accepts gifts or favors from his people. There are some who think that if a second hand accepts such offerings, he obligates himself to the donors.

OVERSEER B: Many second hands fail because they can't work under pressure. Possibly the overseer had the wrong impression of the man when he put him on the job. He just wasn't big enough to run a second hand's job. Then some fail just because they don't have the courage to make a decision and stick to it.

PHOTOELECTRIC STOP MOTIONS

CONTINUED FROM PAGE 129

To keep the unit from constantly stopping the machine when the detector picks up shade marks and dirty yarns, the sensitivity of the detector is adjusted. Adjustments are made on a control panel that is wired to the detector and located on the wall at the rear of the machine.

Sensitivity Is Adjusted

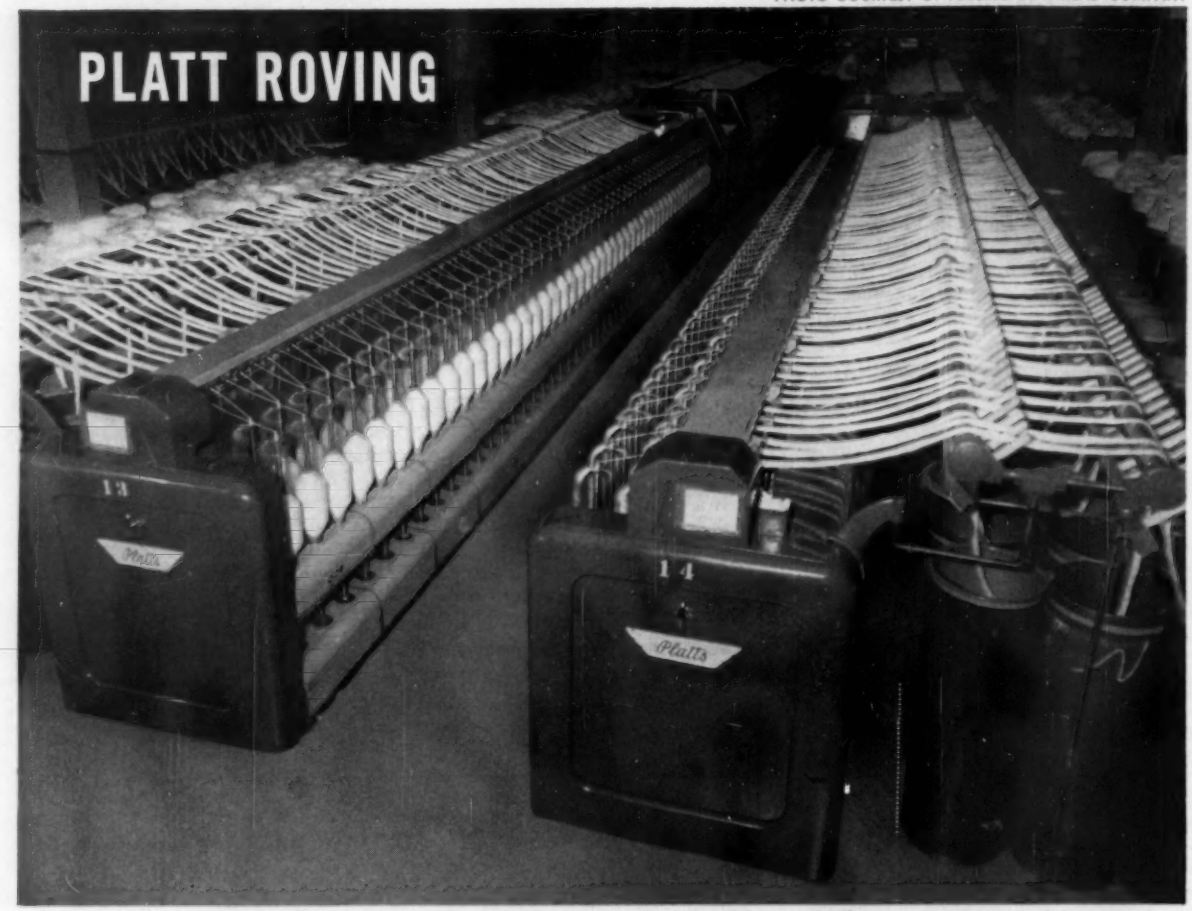
The sensitivity range is from 0 to 10. A sensitivity of 5 is used for 40-den. fabrics. A counter is fitted to the control panel to record the number of stops made to repair faults in each piece of fabric. The unit is powered from a 110-v. circuit, and the control panel is connected directly to the motor that drives the knitting machine.

After the fault has been repaired and the machine has been started, a time delay allows the beam to pass the fault without stopping the machine.

The stop motions have proved particularly useful on the Reading machine. This machine operates at 800 courses per minute to knit about 18 ins. of cloth per minute.

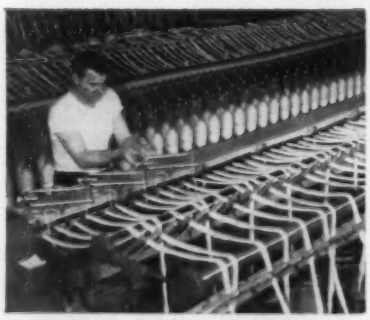
Even with few machines to watch, the operator could not patrol the machines to keep faults caused by ends out and broken needles below 12 ins. The longest faults are now 3 ins. long, but a target has been set to reduce this length to 1 in.

PHOTO COURTESY OF AMERICAN THREAD COMPANY



More spindles are concentrated in any given floor space with Platt's exclusive frame design.

Multiple reorders confirm Platt M·S·2 Frames produce a superior roving



EXCLUSIVE SAFETY FEATURE: Low frames are easy to operate and cannot be inadvertently started with any guard open.

The fourth installation in three years expresses the high regard this major American mill has for Platt Roving Frames. These streamlined frames produce an even, non-stretched roving of superior quality. Vibration and sound have been cut to a minimum. This smoother operation increases the frame's life. The more even roving means fewer ends down in spinning. Before purchasing any new frames we invite you to write for information on these efficient frames manufactured by the world's largest maker of textile machinery.

ATKINSON, HASERICK & CO., INC.
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PLATT BROS. (SALES) LTD.
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HOWARD & BULLOUGH LTD. DOBSON & BARLOW LTD.

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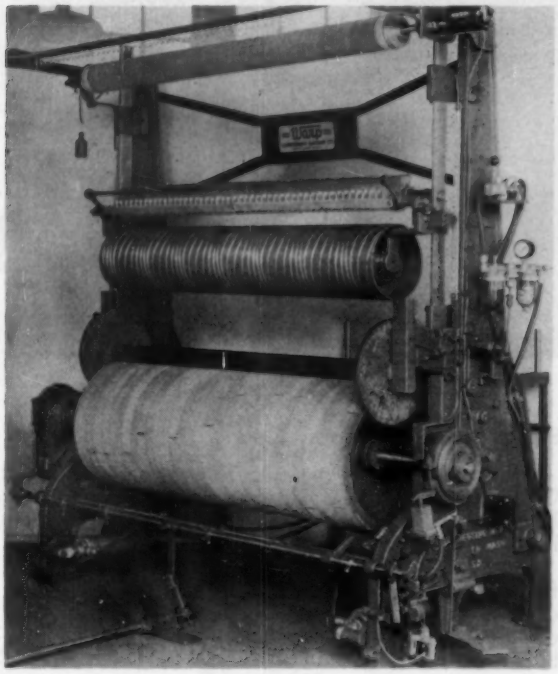
High-Speed Spooler

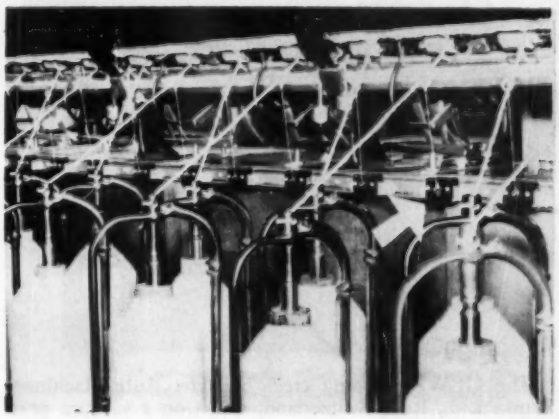
Model N.L.P. heavy high-speed spooler, made by Warp Compressing Machine Co., Worcester 8, Mass., now features (1) pneumatic control of the grooved compressing roll, (2) pneumatic brake, and (3) totally enclosed dustproof electrical stop motion.

The pneumatic control of the compressing roll allows the operator to govern the firmness of the spool as it builds up. After the spool is full, the compressing roll is raised by stepping on a foot treadle. The pneumatic brake can be easily adjusted to stop the driving drum with a smooth braking action at any running speed.

The predetermined yardage counter may be attached to the top tension roll or the driving drum. Oiling of spool gudgeons is eliminated with a nylon facing in the spool guides.

Circle T-1 on Reader-Service Card





Roving Stop Motion

A new-model stop motion for roving frames has been announced by Adams, Inc., 209 E. Stone Ave., Greenville, S. C.

Called Adamstop, the stop motion consists of a series of nylon eyelets mounted on two-way switches (arrow). If roving slackens or breaks, the eyelet falls to either side and activates a switch that immediately stops the frame.

The action eliminates bad production, excessive waste, and damage to the roving frame. The roving tender is freed from close supervision of each frame. Better yarn quality is obtained because of the 10 to 30% fewer ends down in spinning; and roving work assignments can be increased as much as 25 to 100%.

Circle T-2 on Reader-Service Card

Flame-Plated Parts

Parts of textile machines, particularly knitting-machine parts such as cams and selectors, can be made to last from 6 to 10 times longer than normal parts with a process known as flame-plating. Particles of tungsten carbide are blasted on the surface of the part.

Particles of tungsten carbide are fed to a gun and suspended in a mixture of oxygen and acetylene. When the mixture is ignited, the particles are heated to plasticity and are embedded in the surface of the part.

Although the temperature in the gun barrel reaches 6,000° F., the temperature of the part being plated seldom exceeds 400° F.; therefore the part has little chance of warping.

After flame-plating, the parts are polished. Flame-plating and polishing are now done by H. E. Crawford Co., Inc., Kernersville, N. C.

Circle T-3 on Reader-Service Card

Garment-Bagging Machine

Compressed air is used to actuate a packaging machine developed by Phillips & Sons (Manchester) Ltd., Stockton St., Manchester 15, England.

An air jet opens a cellophane bag automatically as a garment is passed toward it. The garment is easily slid into the opened bag. Production rates of 2 doz. units in 40 secs. are possible.

Circle T-4 on Reader-Service Card

Silk and Rayon Loom

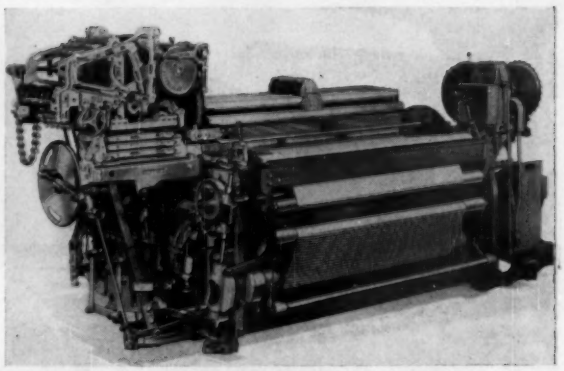
A loom with a rotary four-color battery is announced by Geo. Hattersley & Sons Ltd., Keighley, England. The loom has an electric feeler, but the color selector in the battery is mechanical.

The loom has a power reversing action operated by a foot rail at the front of the loom. When the foot rail is depressed the brake is released, the pick motion is disengaged, the take-up is reversed, and the loom, dobby, and box motion turn backward as many picks as desired.

The take-up motion is the vernier type and can be adjusted to weave any number of picks per inch from 5 to 200 without the use of change gears. Two types of let-off, friction or automatic vernier, are available.

The loom is normally supplied with a cam-operated dobby of 25-shaft capacity. It can be supplied with a four-shaft taffeta treading motion or jacquard.

Other features of the loom include center fork, temple and shuttle-eye filling cutters, and foot-pedal shutter ejectors.



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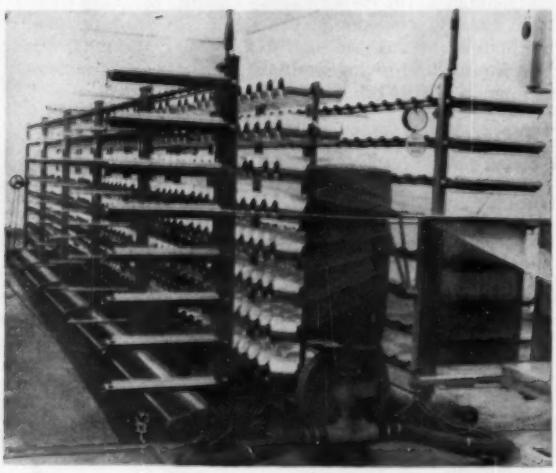


Warping Creel

The GLWK warping creel built by Ruti Machinery Works Ltd., Ruti, Switzerland, works on a vacuum principle and is particularly adaptable to fine rayon and other synthetics yarns. The creel has an interchangeable bobbin frame, which is suitable for dyed yarns because the bobbins are not staggered.

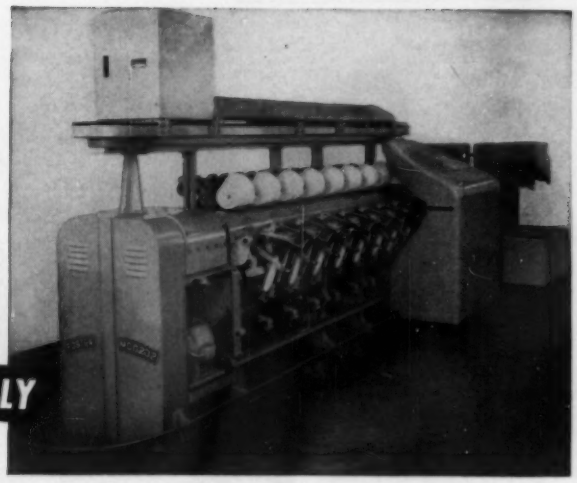
The vacuum device allows the use of light braking members for smooth and even braking of the warp ends. The thread brakes are pneumatically controlled within close limits at low tensions. Tension is regulated from a handwheel at the central control point.

The braking members are self-cleaning, and they can be blown through from any position.

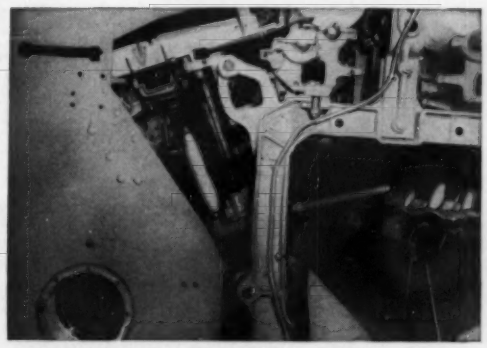
Circle T-6 on Reader-Service Card

FOSTER MODEL 202

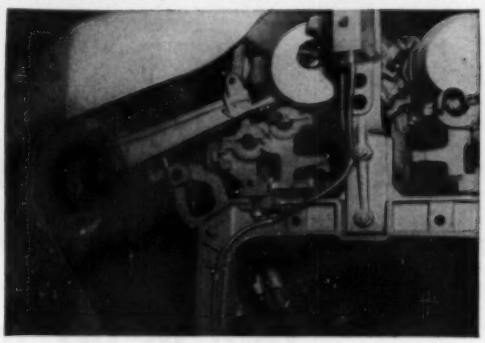
Automatic Cone Winder



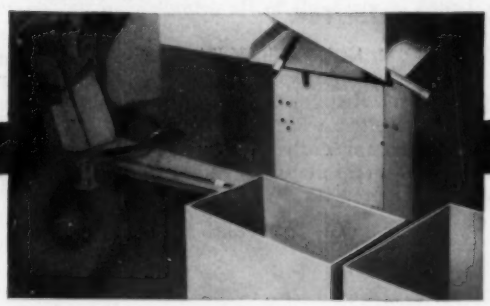
6 OPERATIONS DONE AUTOMATICALLY



Full bobbin moving automatically into supply position. Empty bobbin being doffed to conveyor.



Part of automatic tender which places loose end of cone beside loose end of bobbin and ties them in weaver's knot.



Automatic bobbin sorter depositing empty bobbins in one box and partially filled bobbins in another.

ONLY 3 DUTIES

For Operator

That's why the Foster Model 202 increases production per operator by 100% to 300% (depending on the type and count of yarn) over the best non-automatic winder and why it pays for itself in 2 to 5 years.

The automatic operations are as follows:

1. Spindle stops when end breaks.
2. Automatic tender ties broken ends in weaver's knot.
3. Spindle starts again.
4. Empty bobbins doffed.
5. Empty bobbins carried away.
6. Empty bobbins and partially filled bobbins sorted and put in separate boxes.

And here are the only duties of the operator:

1. Drops full bobbin in chute and catches end in clip in one continuous motion.
2. Dons and doffs cones.
3. Threads up new cones.

And remember, the Model 202 is the ONLY automatic machine which produces cones suitable for knitting. This is only part of the story. Get ALL the facts. Send for Bulletin A-100.

FOSTER MACHINE COMPANY

A Winder for Every Textile Purpose

Westfield, Massachusetts, U.S.A.

Southern office — Johnston Bldg., Charlotte, N. C. Canadian Representative — Ross Whitehead & Co., Ltd., 1475 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ont. • European Representative — Muschamp Textile Machinery Ltd., Keb Lane — Bardsley, Oldham, England.

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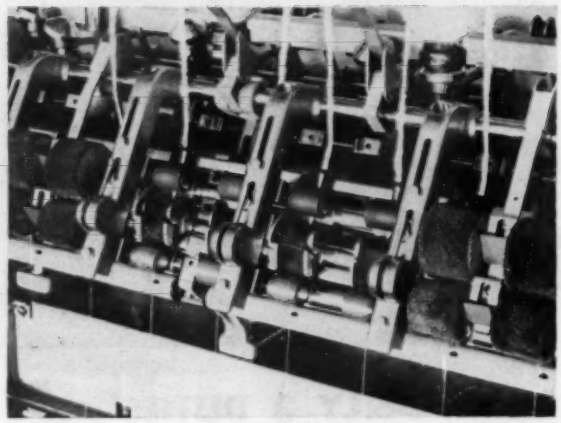


Drafting System

The three-roll double-apron drafting system R14B by A. Carniti & Co., Oggiono, Italy, eliminates the usual roll support, top-roll weights, spring hooks, and weight rods.

Hand pressure on a lever positions the pivoting bar for operation. The gauge of the top rolls can be changed, and the draft range is from 10 to 66. The system can be applied to all types of spinning frames.

The pivoting cap bar consists of a lever that carries the attachments for holding, guiding, and pressure of the top rolls on its lower side. Pressure is exerted by balanced springs on each of the rolls. The system eliminates guides on the sides of the rolls so that no lapping or dirt can interfere with the roll rotation.

Ratch changes are made by adjusting the nut on the top of the cap bar. On each of the bars there is a graded scale against which the ratch is set after it has been determined on the first bar.

Stellite American Corp., 60 E. 42nd St., New York 17, N. Y., is American representative for Carniti.

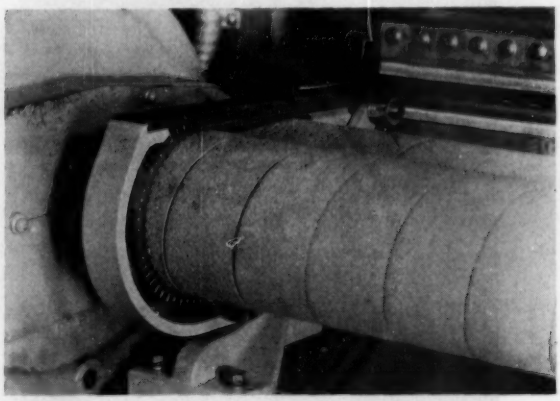
Circle T-7 on Reader-Service Card

Tricot Selvage Spreader

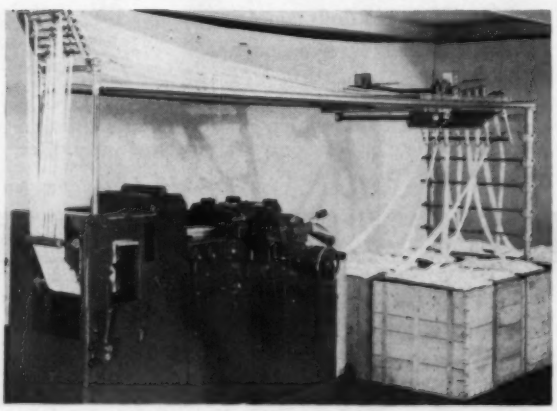
A selvage spreader has been developed by Robert Reiner, Inc., Weehawken, N. J., for RT-3 to RT-6 tricot machines. The spreader can also be used on RT-1 and 2 machines where older take-ups have been replaced by positive take-ups.

The spreader is driven by the larger of the two take-up rollers, and it pulls the cloth forward and out at the same time. The cloth is unpinned at the bottom of the large take-up roll and is held to full width much longer. The cloth on the cloth roll is spread 16 ins. wider.

The spreader also eliminates yarn bounce at the ends of the machine to reduce broken ends and allow higher machine speeds. Uniform cloth is knitted over the entire width of the machine, and the cloth tenters better and looks better after finishing. Photoelectric scanners scan up to 6 ins. more cloth at each selvage.



Circle T-8 on Reader-Service Card



Converter for Tow

A converter that cuts filament rayon into tow and draws it into sliver with a draft of 6 to 20 has been announced by Joh. Jacob Rieter & Co. Ltd., Winterthur, Switzerland.

The converter, which can cut up to 2.5-million-den. yarn, produces sliver that weighs 10 to 20 grams per meter. U. S. sales representative is American Rieter Co., Passaic Ave. and Clinton Rd., West Caldwell, N. J.

Circle T-9 on Reader-Service Card

From Tip to Butt . . .

A Draper bobbin incorporates all of the features found to be desirable in a quality bobbin;

1. Finest raw materials
2. Engineering . . . by men who *know* bobbin requirements
3. Uniformity in manufacture
4. Proven finishes

Each Draper bobbin is a custom-made example of precision production wherein minimum tolerances, consistent with a practical woodworking operation, are maintained.

The cost of an individual bobbin is small, but annual mill expense for bobbins is considerable. Specify the best for *both quality and economy* . . . a Draper bobbin.

DRAPER CORPORATION

Hopedale, Mass. *Atlanta, Ga.* *Greensboro, N. C.* *Spartanburg, S. C.*

Stretch-Sock Packager

A packaging machine to automatically wrap diaper bands on stretch socks on boards has been introduced by Western Printing Co., Teaneck, N. J. Known as Wrapak, the machine packages diaper bands on stretch socks at the rate of 800 to 1,000 doz. pairs per 8-hr. shift.

There is no waste, and each package is clean and neat with the diaper band perfectly applied. All adjustments for various thicknesses of socks and sizes can be made quickly by the operator. The machine eliminates the need for gumming bands. A special cold glue is used, and diaper bands can be printed and stored for a long time.

Circle T-10 on Reader-Service Card

Automatic Tying Machine

Fabrics or garments can be tied in bundles quickly and automatically with a machine manufactured by G. H. Bunn Co., 7605 Vincennes Ave., Chicago 20, Ill.

The machine wraps twine around the bundle or package under the proper tension, ties a nonslip knot, and cuts the twine. Average tying time per unit is 2 secs.

Circle T-11 on Reader-Service Card

Truck for 18-in. Cans

A truck for hauling 18-in. sliver cans, developed at Harriet Mills, Henderson, N. C., is now being manufactured and sold by Jenkins Metal Shops, Inc., Gastonia, N. C.

A full-width roller at the back of the truck serves as a back caster and loading roller. To load the truck, a can is tilted and the back roller is run under the lifted edge.

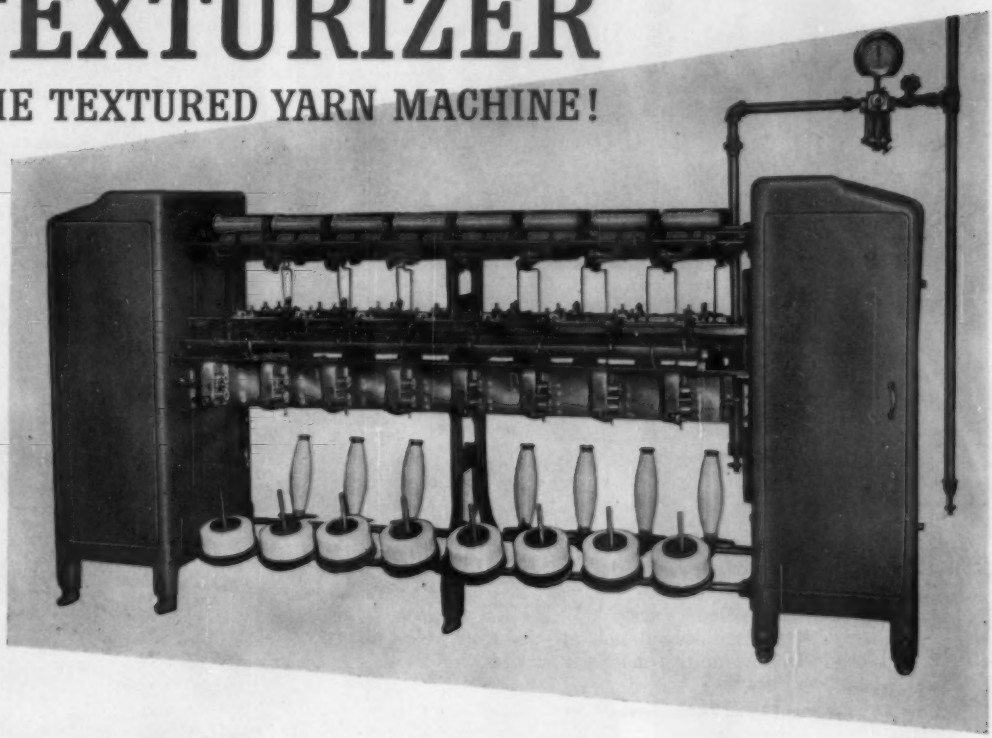
The truck takes up only a little more floor space than the cans occupy; and operating practice is to leave the cans on the truck at the breaker drawing.

Circle T-12 on Reader-Service Card

U. S. TEXTILE MACHINE CO.
takes pleasure in presenting
its

All New U.S. ACME TEXTURIZER

THE TEXTURED YARN MACHINE!



the first efficient production unit for "TASLAN" textured yarns!*

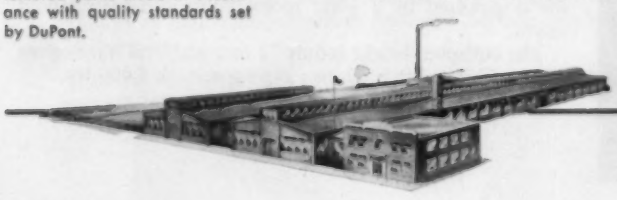
Watch for a big spurt in textured yarns . . . 60-spindle U. S. ACME TEXTURIZERS are now in production on "TASLAN"* textured yarns at DuPont licensees!

The new U. S. ACME TEXTURIZER introduces a whole new quality and profit approach to textured yarn production. It's designed for both the wet or dry process of texturizing twisted or untwisted filament yarns from cakes, cones, pirns, etc., to new, bigger, uniform headless packages—ready for quilling or warping!

In typical U. S. ACME tradition, this new machine provides positive yarn feed control, simplicity of threading, accurate tensioning—and more! Complete information is available . . . write or phone now.

U. S. TEXTILE MACHINE CO. • Scranton 8, Pa., U. S. A.

*"TASLAN" is DuPont's registered trademark designating textured yarns made in accordance with quality standards set by DuPont.



U. S. TEXTILE

designers and manufacturers of
U. S. ACME MODERN THROWING EQUIPMENT

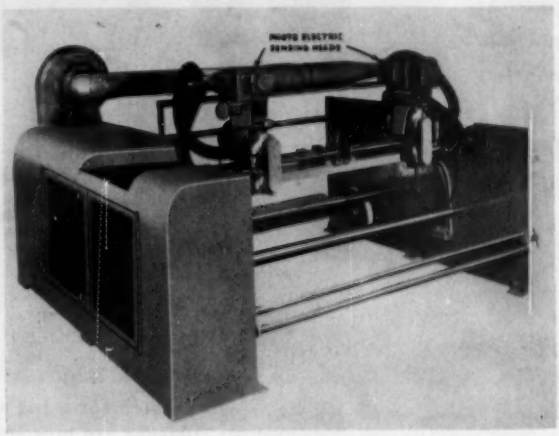
For more data, write this page number on Reader-Service card. →

Color-Matching Lamp

A color-matching lamp that is designed to complement larger units in its line of color-matching equipment has been announced by Macbeth Daylighting Corp., a subsidiary of Macbeth Corp., Newburgh, N. Y.

The unit is self-contained and requires a space 28½ ins. wide, 16 ins. deep, and 39 ins. high.

Circle T-13 on Reader-Service Card



Selvage Trimmer

A photoelectric sensing head provides control to within ⅛ in. on a selvage-trimming machine developed by Hermas Machine Co., Hawthorne, N. J.

Designed to trim wire-loop selvages or tails left from bobbin changes, the machine will not cut the loops or nick slack selvages. The unit is marketed as the Model VSS selvage-sensing machine.

Circle T-14 on Reader-Service Card

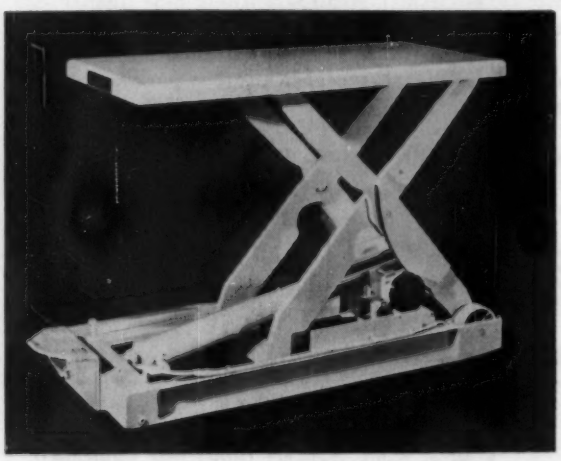


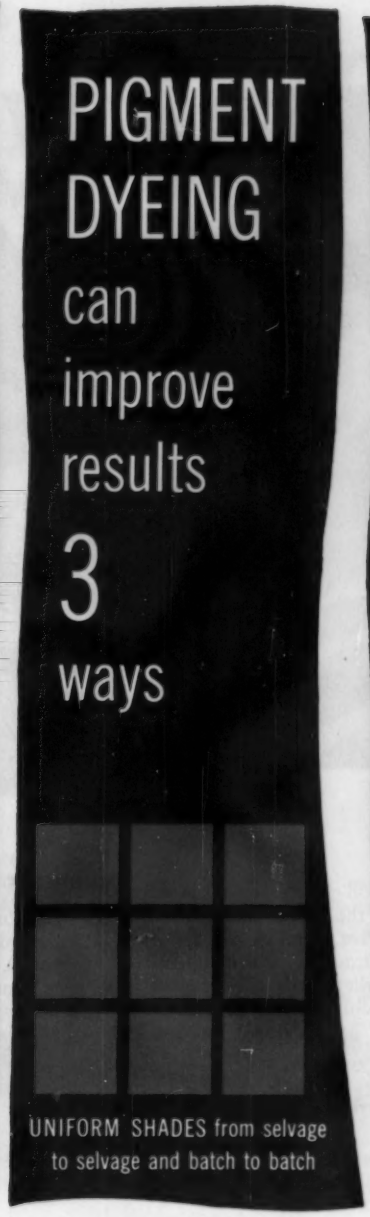
Table To Lift Fabric

A lift table to raise fabric to correct working or positioning heights is announced by Southworth Machine Co., Portland, Me. The table eliminates fatigue resulting from stooping and lifting.

The mechanism is small enough to slide between the legs of skids to raise fabric from the skids. The scissors-type lift is powered by a ½-hp. motor controlled by solenoid valves.

The collapsed height is only 7¼ ins.; platform dimensions are 24x53 ins.; lift is 30 ins.; and capacity is 4,000 lbs.

Circle T-15 on Reader-Service Card



Tired of writing off color variations, rejects and returns? Looking for an extra edge in sales appeal to spark demand? Pigment dyeing with SHERDYE® Padding Colors can often solve both problems. Pigment dyeing offers three important ways to improve output:

LIGHT-FASTNESS can be balanced throughout an entire line of colors by selective use of pigment and other dyes. Pigment colors provide superior light-fastness in most wanted light colors.

UNIFORM SHADES can be obtained with pigment colors from beginning to end of run. Concentration does not become depleted as bath materials are used.

BRIGHTER SHADES obtainable with pigment colors meet consumer preferences for lighter, brighter, sunfast colors.

Find out what more and better use of SHERDYE Padding Colors can offer in your operations. Contact The Sherwin-Williams Co., Pigment, Color and Chemical Division. 260 Madison Ave., New York 16, New York.

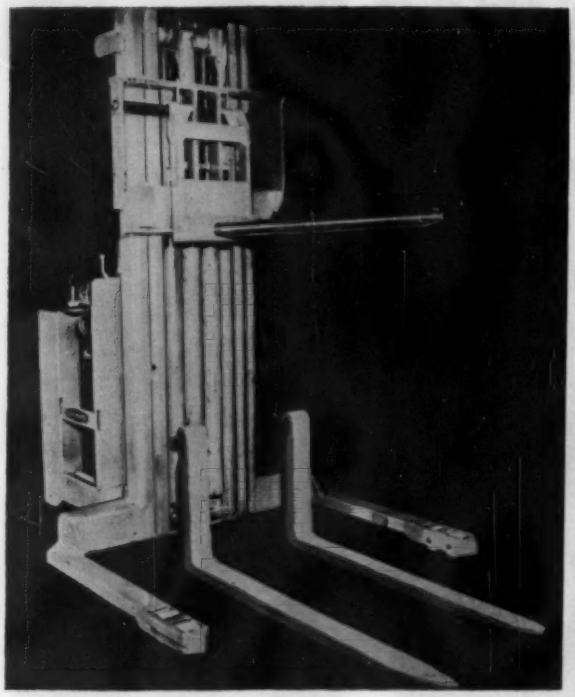
SHERWIN-WILLIAMS

SHERDYE

PADDING COLORS

PIGMENT COLOR & CHEMICAL DIVISION

For more data, write this page number on Reader-Service card. →

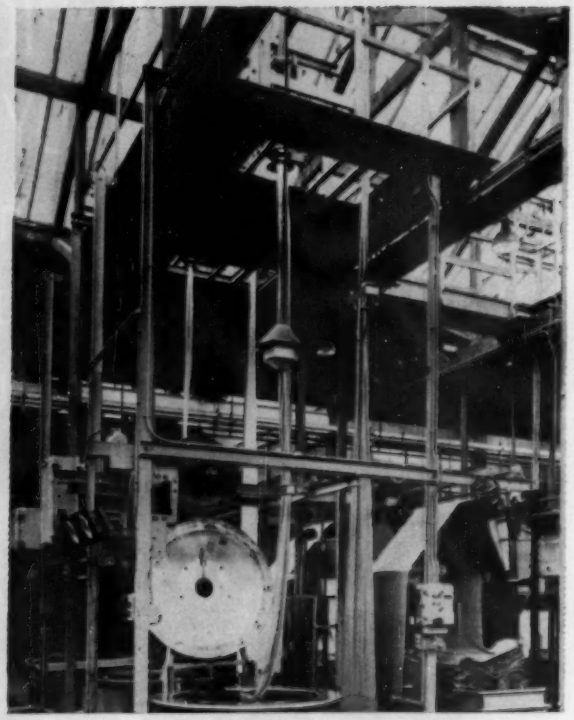


Dual-Purpose Truck

A fork truck that will handle roll goods or palletized loads as needed has been built for the textile industry by Raymond Corp., 95-148 Madison Ave., Greene, N. Y.

The truck is of straddle-base construction. It is equipped with hook-on forks for handling pallets and a 2½-in. steel ram for handling rolls. Either attachment can be quickly placed or removed. The truck will handle 4,000 lbs. and elevate the load to 152 ins.

Circle T-16 on Reader-Service Card

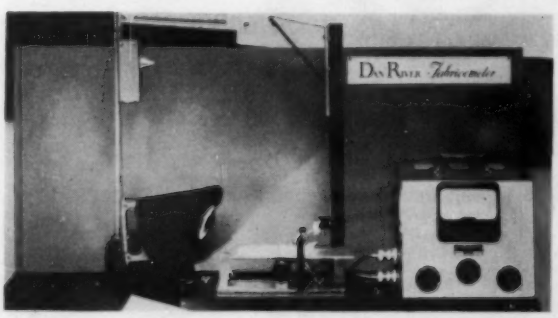


Automatic Scutcher

A detwisting and opening range has been marketed by G. Durrant & Sons Ltd., Bury St., Stockport, England.

Originally developed by Bradford Dyers Assn. Ltd., the machine is suitable for hauling out cloth of any kind from hydroextractors or trucks. The detwister has an antihunt device that permits operation of the unit at any speed from 10 to 150 yds. per min.

Circle T-17 on Reader-Service Card



Wrinkle-Measuring Meter

A machine that checks residual wrinkles in resin-finished cotton fabrics that have been washed and tumble-dried is being made and marketed by Dan River Mills, Danville, Va., under license from Prof. Lloyd Motz of Columbia University.

The tester, called the Fabricometer, employs an optical lever to determine the height of wrinkles in a sample of fabric. In this system a beam of light is thrown across the sample, and a photosensitive tube is adjusted so that the light impinges on it for a given deflection of the ray of light.

The wrinkles in the sample deflect a portion of the light reaching the photosensitive tube, causing a variation in the current transmitted to a photometer. The extent of wrinkling may be read directly from the photometer scale.

Circle T-18 on Reader-Service Card

GOOD IDEAS
ARE WORTH MONEY TO YOU

STEEL HEDDLE MFG. CO.

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CABLE ADDRESS
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To the man with an idea:

Let Stehedco Research and Development help you to capitalize on your ideas.

The growth of Steel Heddle Mfg. Co. since 1898 has been greatly aided by practical ideas from mill men which were beneficial to the Textile Industry, and the people we have worked with are well satisfied and happy with their financial return.

If you have an idea for us to develop and market, or a completely designed product, tell us about it. Make your story as complete as possible and send it to Steel Heddle Mfg. Co., Box #6833, Philadelphia 32, Pa., or to Southern Shuttles Division, Box #1899, Greenville, S. C., to the attention of the Research and Development Department. Your rights will be fully protected in every way.

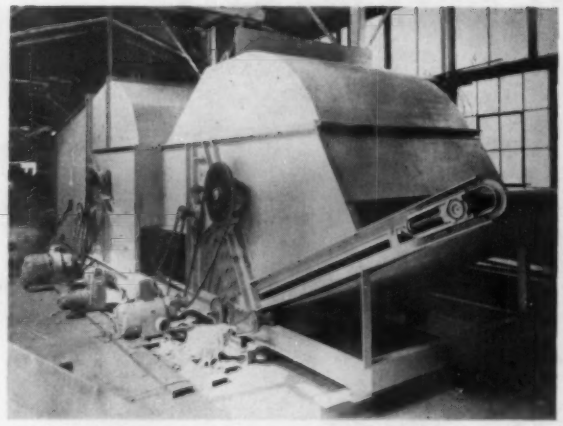
The idea, gadget, new product or invention must be applicable in the throwing, warp and yarn preparation or weaving field. It may be an improvement in our present line of products, or a new product for the same line. We will give your idea full consideration and tell you frankly whether or not we think it has merit. Should the idea not be applicable to our manufacture we can help you locate sources which we feel would be to your best interests in exploiting the idea.

You have everything to gain and nothing to lose, so let us hear from you.

Yours for better textiles

Harry W. Fehr

Harry W. Fehr, President
Steel Heddle Mfg. Co.



Rag Opener

A combination bale-opening and feeding machine that opens whole bales of rags and feeds them automatically to the feed apron of a cutter or to a sorting apron at 15,000 to 25,000 lbs. per hr. has been announced by Taylor, Stiles & Co., 15 Bridge St., Rieglesville, N. J.

Jamming is avoided by an improved design of the feed roll and by the enlargement of the space between the cutting element and the frame.

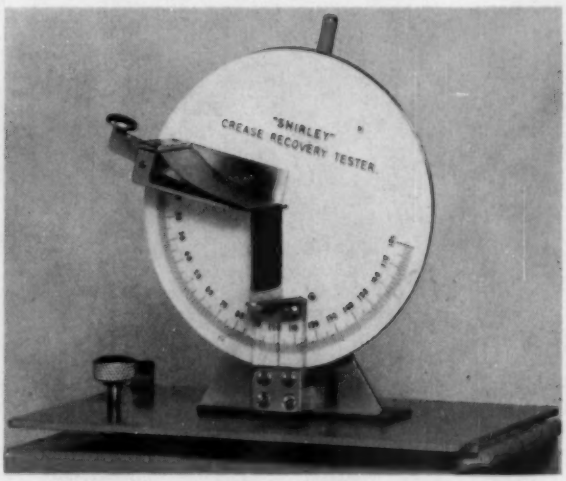
Circle T-19 on Reader-Service Card

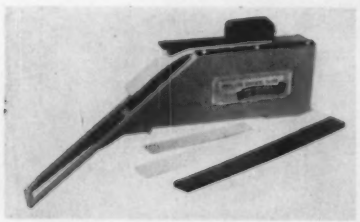
Crease-Recovery Tester

The ability of a fabric to recover from creasing can be measured with an instrument announced by Shirley Developments Ltd., Manchester, England.

A specimen 2x1 ins. is first creased under controlled conditions, placed in a clamp on the testing machine, and allowed to recover from the creasing. As the sample recovers, the dial of the instrument is rotated to keep the free edge of the material in line with a knife edge; and at the end of the recovery period, the recovery angle in degrees is read off on the scale engraved on the dial.

Circle T-20 on Reader-Service Card





Stiffness Tester

A testing machine that measures the stiffness of thick sheet materials has been announced by Fabric Development Tests, Inc., P. O. Box 45, Brooklyn 32, N. Y. The Model-X tester was designed to handle carpets, felts, battings, sponge rubber, or similar materials from $\frac{1}{8}$ to 2 ins. thick.

Circle T-21 on Reader-Service Card

Standard Safety Switches

A line of safety switches meeting the new NEMA standards is announced by Square D Co., 6060 Rivard St., Detroit 11, Mich.

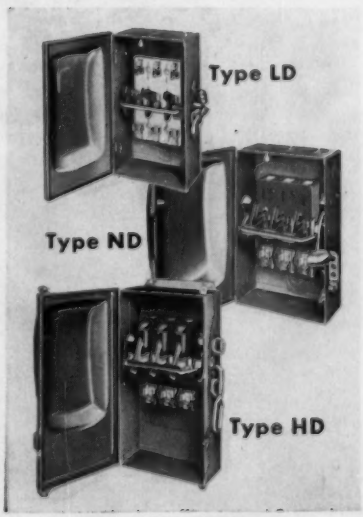
Three types of switches are included:

1. A switch for light duty has a full range from 30 to 200 amps. in both general-purpose and raintight enclosures.

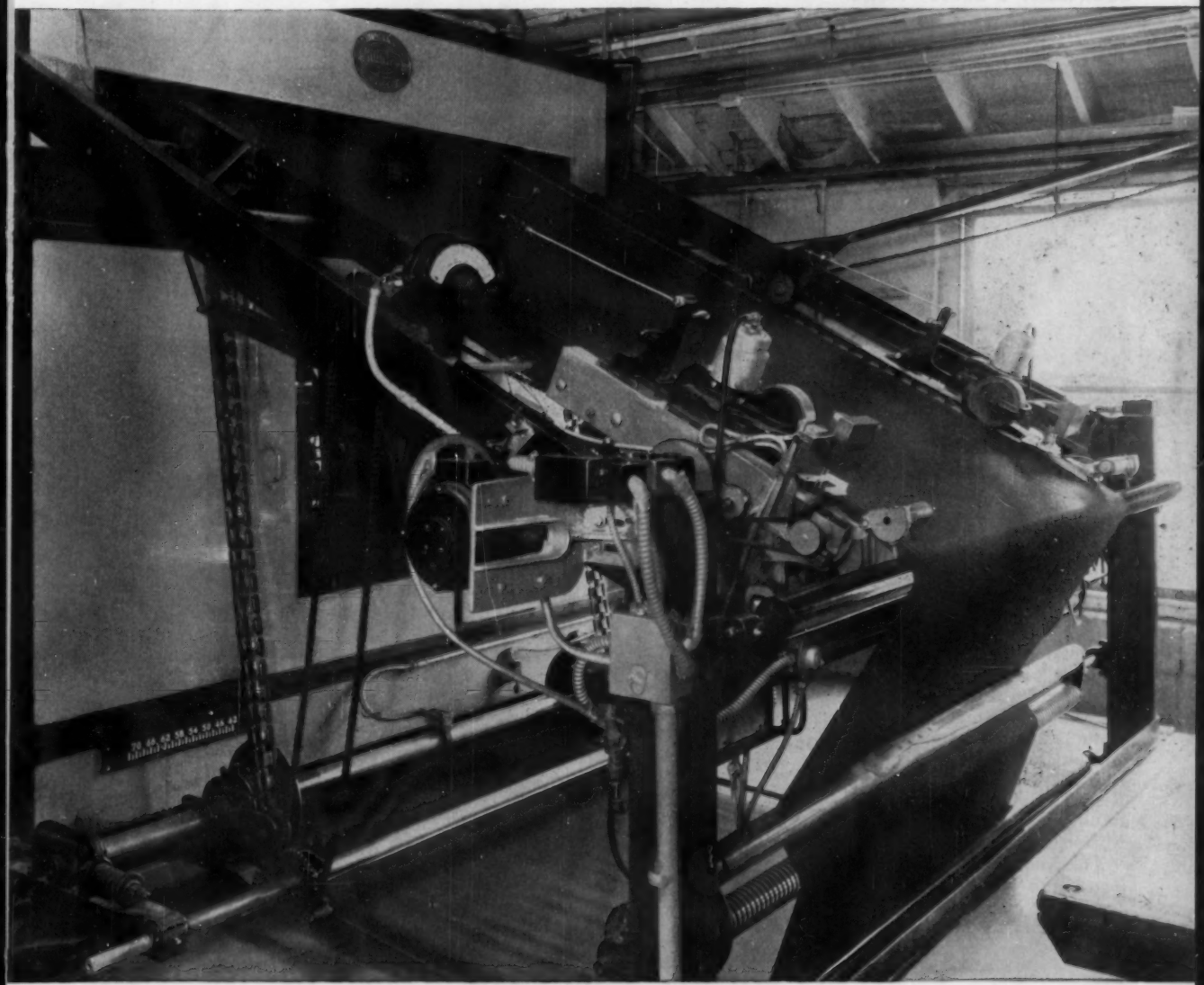
2. One switch for normal duty extends from 30 through 1,200 amps. in both 250 and 600 v., a.c. and d.c. It has general-purpose and raintight enclosures and a quick-make quick-break operating mechanism.

3. A switch for heavy-duty use is watertight, dust-tight, and explosion resistant.

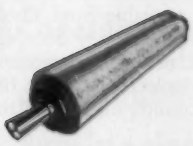
Circle T-22 on Reader-Service Card



CUTTING COSTS with RUBBER COVERED ROLLS



STOWE-WOODWARD Rubber Squeeze Rolls cut drying time and drying costs too . . .



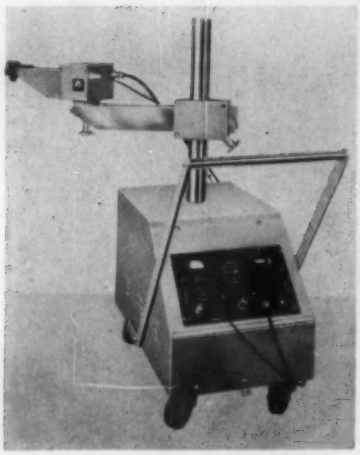
Maximum uniform extraction of moisture in the squeeze rolls greatly reduces the load on the dryers, resulting in dual savings. Where the drying operation is a limiting factor in the speed of the process, the increase in extraction at the squeeze rolls can mean an increase in the speed of the process and a corresponding increase in production.

In new installations, the increased extraction afforded by Stowe-Woodward rolls often permits the use of smaller dryers, steam generating equipment and tenter frames. Ask your Stowe-Woodward Sales Engineer about the advantages of Stowe-Woodward rolls in your plant.

Complete roll processing plants at:
NEWTON UPPER FALLS, MASS.
NEENAH, WISCONSIN
GRIFFIN, GEORGIA

STOWE-WOODWARD, Inc.
Craftsmen in rubber
RUBBER ROLLS with a REPUTATION

New York office: WOOLWORTH BUILDING, NEW YORK 7, N. Y. ● *On the West Coast:* HUNTINGTON RUBBER MILLS, INC., SEATTLE



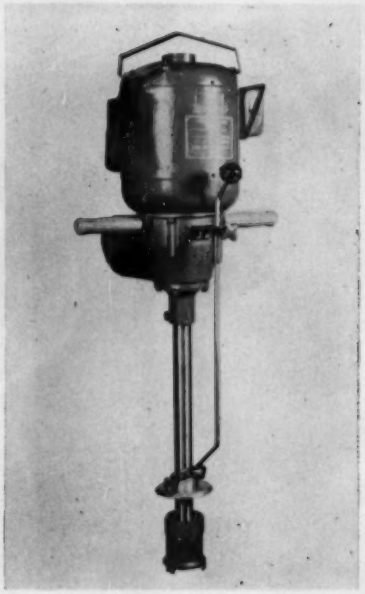
Circle T-23 on Reader-Service Card

Yarn-Defect Analyzer

A portable electronic instrument for inspecting, counting, and providing quantitative analysis of yarn defects in spinning, winding, twisting, and other operations is announced by Lindley & Co., Mineola, N. Y. Any defects over a predetermined size can be detected.

The equipment rolls quickly and easily into yarn-inspecting position without stopping, slowing, or disturbing the yarn-producing machine; and it can be used in any operation where the yarn is packaged, twisted, spun, or slubbed. Bobbins, pirns, cones, or cheeses need not be removed.

The yarn need not be conditioned, and temperatures or humidity need not be controlled. There is no waste of yarn; and intermittent or continuous tests can be made on cotton, wool, worsted, or synthetics yarns.

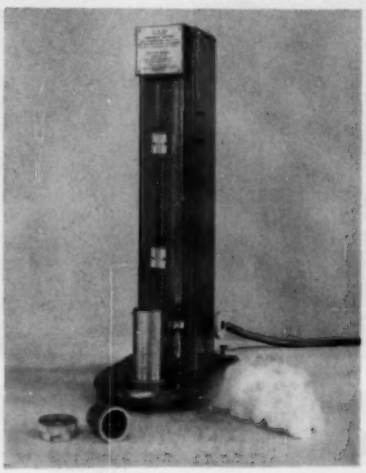


Cotton Fineness Tester

Developed by the British Cotton Industry Research Association and the Wool Industrial Research Association, the Wira fineness meter for measuring maturity and fineness of cotton is obtainable from Shirley Developments Ltd., Didsbury, Manchester, England. Results from the instrument can be readily converted to the equivalent Micronaire value.

The Micronaire value of a sample increases as the value maturity ratio and the standard fiber weight per centimeter increase. The air-flow values determined on the instrument may be related to Micronaire value or to maturity ratio and standard fiber weight per centimeter with a table or graph.

A scale marked in Micronaire units may be prepared and placed behind the flow-meter tube of the instrument so the Micronaire value of a specimen can be seen during testing.



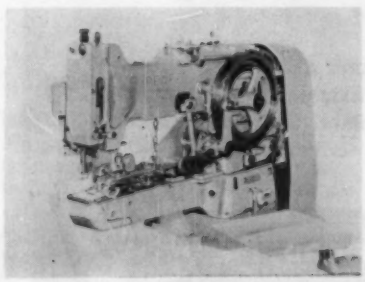
Circle T-24 on Reader Service Card

Demountable-Head Mixer

Industrial mixers that feature quickly demountable mixing heads have been marketed by Gabb Special Products, Inc., Windsor Locks, Conn.

The mixing head is a complete unit that includes the seals, bearings, shaft, and impeller. Removal of four retaining bolts and loosening the drive belt disengages the mixing head from the motor. Changing from one type of mixing head to another takes only a few minutes.

Circle T-26 on Reader-Service Card



Circle T-25 on Reader-Service Card

Button-Sewing Machine

A sewing machine that sews four-hole buttons on garments without the usual crossover stitch that characterizes machine sewing is being featured by Willcox & Gibbs Sewing Machine Co., 214 W. 39th St., New York, N. Y.

The machine is a Pfaff 3301-25-17XX and employs a single-thread chain stitch to accomplish its purpose. Electromagnetic control and an automatic button-clamp lifter reduce manual effort to a minimum.

Tricot Edge Uncurler

An edge uncurler for warp-knit fabrics is to be made available on a royalty-free basis by Celanese Corp. of America and is available from Photobell Sales Corp., 43 Vesey St., New York, N. Y. The uncurling device supplements a photoelectric scanner that inspects fabric coming off the knitting machine.

The uncurler broadens the inspection range of the scanner to the outer fabric edge. The efficiency of the scanner is increased, and dyeing is improved because the fabric edge is set while it is free from curl.

Circle T-27 on Reader-Service Card

CONTINUED ON PAGE 242

Synchronous Speed with Induction Simplicity

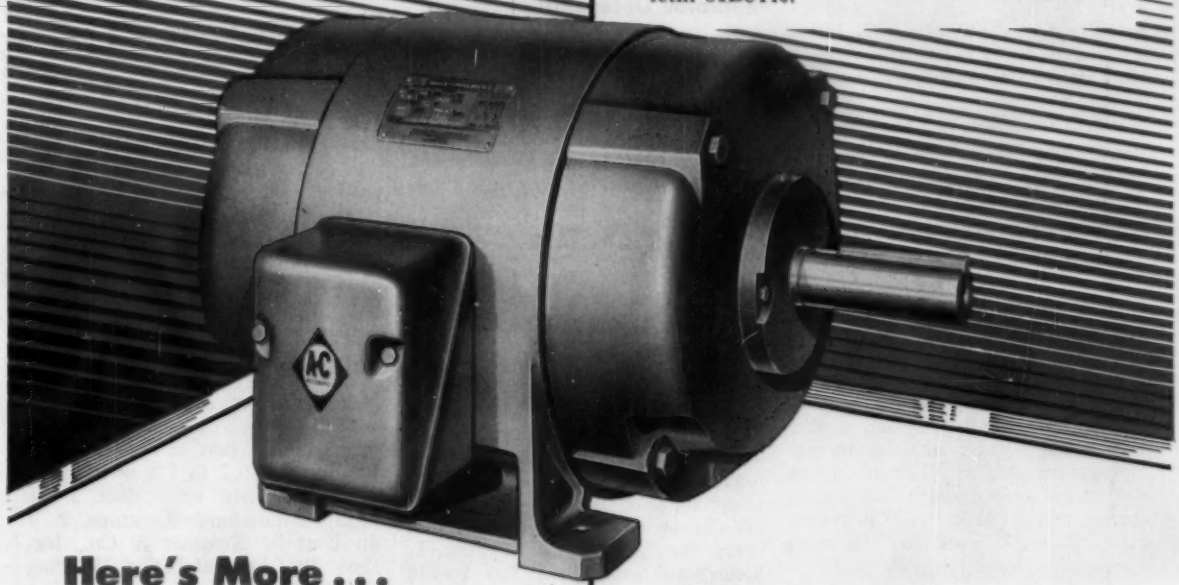
New *Synduction* Motor

...has uses in:

- Synthetic Fiber Production
- Wire Drawing
- Plate-Glass Conveyors
- Packaging Machinery
- Food Processing
- High Speed Cameras
- Metering Pumps
- Electronic Computers
- Printing Presses
- Frequency Converter Sets
- Drives for Electronic Power Supplies
- Continuous Bristle Cutting

Do YOU Have an Application?

Allis-Chalmers engineers are anxious to help you determine where *Synduction* motors can improve your operations. Call your A-C office or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin, for Bulletin 51B8440.



Here's More...

- **Constant speed, regardless of load or voltage, depends only on frequency**
- **Synchronized speeds for a number of motors**
- **Adjustable speed by frequency control at any speed setting**

Allis-Chalmers new development—the *Synduction* motor — now makes these characteristics available at low cost. The sturdy frame and simple design, similar to that of a squirrel-cage motor, eliminates collector rings, brushes and rotor insulation — cuts maintenance. Other important advantages include across-the-line starting, wide range of speeds and high efficiency.

Synduction is an Allis-Chalmers trademark.

A-C ALLIS-CHALMERS

A-9118

ALLIS-CHALMERS

For more data, write this page number on Reader-Service card. →

NEW DYES AND CHEMICALS

Nonionic Surfactant

Lubrol WX . . . dissolves in water to give clear solutions stable to acids, alkalis, salts, and hard water. Produces excellent emulsions with oleic acid and mixtures of oleic acid and mineral oil, which can be used in wool spinning, or as a spotting agent in removing graphite stains. Arnold, Hoffman & Co., Inc., Providence, R. I.

Circle D-1 on Reader-Service Card

Detergent

Sonolene L . . . contains 53% active material that has excellent detergent effect on cottons, acetates, and acrylic fibers. Recommended for scouring wool, viscose, nylon, and Dacron when alkaline builders are added to the bath. L. Sonneborn Sons, Inc., 300 Fourth Ave., New York 10, N. Y.

Circle D-2 on Reader-Service Card

Nonionic Wetting Agent

Triton CF-21 . . . recommended as a penetrant in desizing, a detergent in the continuous boil-off operation, and a dispersing agent in making up vats for pigment padding. The product is also useful as a dyebath additive in dyeing direct, basic, and dispersed colors. Rohm & Haas Co., Washington Square, Philadelphia, Pa.

Circle D-3 on Reader-Service Card

Premetallized Dye

Lanasyn Bordeaux GRL . . . a neutral-dyeing premetallized color that produces fast shades on wool, nylon, or silk. The dye exhibits superior fastness to crocking, alkaline milling, water, and light. Suggested for automotive and decorative fabrics. Sandoz Chemical Works, Inc., 61-63 Van Dam St., New York 13, N. Y.

Circle D-4 on Reader-Service Card

Softener

Ampitol PE-30 . . . a nonionic polyethylene emulsion, improves tear strength and abrasion resistance of resin-finished fabrics as well as imparting a soft hand. The emulsion is compatible with the principal resins used in producing wash-and-wear finishes. Dexter Chemical Co., 819 Edgewater Rd., New York 59, N. Y.

Circle D-5 on Reader-Service Card

Nonionic Detergent

Synthrapol PWS . . . has excellent detergent effect on cotton or wool and is compatible with many other agents. Recommended for raw-wool scouring, soaping printed cottons, and as a wetting agent in desizing operations. Arnold, Hoffman & Co., Inc., Providence, R. I.

Circle D-6 on Reader-Service Card

Softener

Sonofin C . . . a 100% active nonionic material recommended for use with resin or starch finishes on cotton, rayon, or synthetics. The product forms stable emulsions and will not discolor at elevated temperatures or affect the lightfastness of dyes. L. Sonneborn Sons, Inc., 300 Fourth Ave., New York 10, N. Y.

Circle D-7 on Reader-Service Card

Defoamer

Surfynol 104A . . . a ditertiary acetylenic glycol supplied as a solution in 2-ethyl hexanol, is suggested as an additive to starch, resin, or latex treating baths to eliminate undesirable foaming. Air Reduction Chemical Co., 150 E. 42nd St., New York 17, N. Y.

Circle D-8 on Reader-Service Card

Antibacterial Finish

Cyana Purifying Finish . . . applied to cellulosic- and synthetic-fiber fabrics produces a durable antibacterial effect that eliminates or greatly reduces odors formed by bacterial breakdown of perspiration. The finish is resistant to home laundering and dry cleaning but is sensitive to chlorine. Woolen goods require a small amount of resin binder in conjunction with the antibacterial finish to produce durable results. American Cyanamid Co., Bound Brook, N. J.

Circle D-9 on Reader-Service Card

Nonionic Softener

Cyanatex 3119 . . . produces lubricating and softening effects on natural and synthetic fibers. The product resists discoloring at normal drying and curing temperatures and is compatible with all types of resins and most other finishing materials. American Cyanamid Co., Specialty Products Dept., Bound Brook, N. J.

Circle D-10 on Reader-Service Card

Softener

Nalans RF . . . recommended to be added to Zeset S or Panalon CR resins in the production of wash-and-wear finishes. From 2 to 5% of the product is suggested to produce a soft hand on resin-finished cottons. E. I. du Pont de Nemours & Co., Inc., Dyes & Chemicals Div., Wilmington, Del.

Circle D-11 on Reader-Service Card

Knitting Lubricant

Crystol . . . for full-fashioned knitting-machine trough solutions. The solution can be used for knitting sized, unsized, and stretch yarns and gives clear, clean troughs. It lubricates, controls wetting, and helps to get uniform lengths. The product reduces rust and deposits and reduces wear on parts. Reading Testing Laboratories, Inc., Reading, Pa.

Circle D-12 on Reader-Service Card

Nothing CLEANS

✓ SO SAFELY
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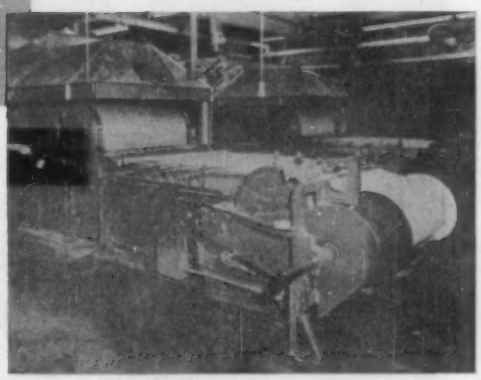

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THIS IS NO. 122 OF A SERIES ON

GETTING THE MOST FROM TWISTING

Information about twisting designed to show improvements in twisting equipment and new ideas in the twisting operation

NEW FLEXIBILITY ADDED TO MODEL 10 RING TWISTER

The versatile Model 10 Ring Twister has been given even greater flexibility. Now, in addition to giving mills using it the ability to process a variety of yarns, it also makes it possible to obtain different package builds with a minimum of changeover. For example, Model 10's equipped with the AY-10B-118 taper-top builder can, with the addition of some new parts (Fig. 1), wind the twisted or plied yarn onto cone shaped packages that can be brought directly to the knitting machine. (A more detailed description of this mechanism is given in Twists and Winds No. 120.) With another slightly different modification these Model 10 Ring Twisters can be made to produce a double taper-end package with a wandering warp wind. These changes can be made without changing the complete builder mechanism.

The additional parts required to produce the various types of builds necessitated the use of a longer builder cable that would not be satisfactory for use with the regular taper-top builder. Now a new cable is being furnished that is adaptable to the several types of builds that can be obtained with the AY-10B-118 type builder. The new cable (Fig. 2) is stronger too, for it is swedged into threaded nuts to prevent fraying. It is supplied with new auxiliary slide links and a new lifter bar end when furnished as a replacement part for twisters equipped with the older type cable.

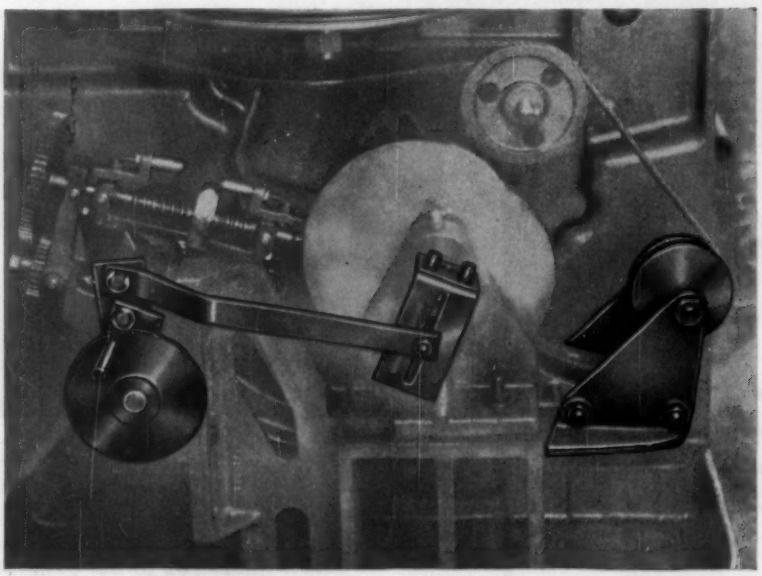

Fig. 1 — Builder equipped with filling wind parts.

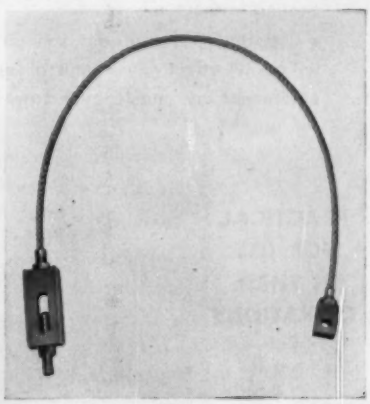

Fig. 2

The new lifter bar end has two locations at which the adjusting lug on the cable can be attached to it, depending on whether the cable is used with wandering warp or filling wind build or with the regular taper-top builder.

It is necessary to disconnect the lifter bar segment tape at the first midstand when adjusting the cable. Also, the cable must be disconnected from the lifter bar. Since this leaves the lifter bar and ring rails without support, a support should be placed under each lifter rod cross bar while the adjustment is being made.

May 1957 — 23.6.10

Winding and Twisting Machinery for Natural and Synthetic Yarns

UNIVERSAL WINDING COMPANY

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Do you need help on a technical problem? TEXTILE WORLD is at your service in helping solve problems in yarn manufacturing, weaving, knitting, dyeing, finishing, and other textile operations. A large staff of mill men, consultants, and other experts are available for authoritative answers. Send your problem to the Editor, Questions and Answers, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

Acid Cracking Treatment For Wool Waste Water

Technical Editor:

What method is most used to treat the residual water from wool-washing operations? (1284)

The acid cracking treatment is the most widely used method to remove wax and grease from scouring liquors. There are several variations of the method. Here's a typical setup:

The scouring liquors, which are sometimes diluted with effluent from other parts of the mill, are run into large tanks that serve for storage and sedimentation. Pipes at several levels in the tanks reject the sand that collects at the bottom.

The liquors are passed through a coarse filter to remove fibers and large pieces of vegetable matter before passing to the cracking tanks. Sulfuric acid is added to reduce the pH to 4, and the mixture is agitated with compressed air or paddles.

Up to 20% of the sulfuric acid is sometimes saved by using calcium salts as cracking assistants. The liquor is allowed to stand for several hours after the acid is added to let the grease settle. The liquor floating on the surface is drawn off and run to waste.

The sludge is pumped to hot storage tanks and then to steam-heated filter presses. Pressure in the presses is kept to 60 lbs. per sq. in. and the temperature to 80° C. Water and wax pass through the filter and are collected in a vessel that separates the hot wax by allowing it to overflow into storage tanks.

The residue in the filter presses may contain up to 20% grease, which cannot be economically pressed. This residue is sometimes used for fertilizer.

Paper on Spreader Roll Will Improve Creases

Technical Editor:

We are having trouble with creases on silk fabrics that run at an angle to the selvages toward the center of the cloth. How can we overcome this problem? (1260)

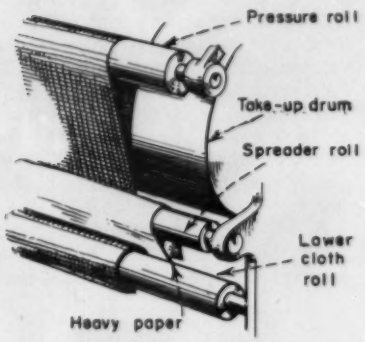
There are several things you can do to eliminate creases in silk or rayon fabrics:

1. Be sure the covering on the take-up roll and the pressure roll are smooth and free from ridges. The take-up-roll-covering surface must be in good condition, and the pressure roll must be resilient so that the cloth pulls down evenly.

2. Set the tension on the pressure roll as light as possible consistent with positive taking up of the cloth.

3. Set the cloth-roll clutch so that the tension on the cloth roll is as light as possible and still wind up.

4. Be sure the cloth roll is smooth. Start the cloth around the roll smoothly all the way across. Avoid rolling up large amounts of cloth on the roll when cloth is doffed. Avoid unrolling and rerolling the cloth unnecessarily while a roll of cloth is being woven.



STIFF PAPER doubled over the spreader roll will help eliminate creases that run at angles from the selvages. Make sure that the paper is a few inches wider than the spreader roll.

5. Double a piece of stiff paper a few inches wider than the cloth and place it around the take-up-roll spreader roll. Thread the cloth inside the spreader roll and let the cardboard overlap about half the diameter of the cloth roll. The cardboard will spread the cloth over the roll evenly.

Tips on Weaving Glass-Fiber Fabrics

Technical Editor:

How can we eliminate tight picks in satin-weave glass-fiber fabrics? (1285)

Here are a few tips that will help:

Set the tension on the tensioning pads in the shuttles as light as possible. Be sure the pad springs are free from dirt and lint so that the pads vibrate freely. Set up a regular time for loomfixers to check the pads.

Depend on the shuttle fur to apply tension to the yarn to compensate for the light tension on the tensioning pads. On spun yarns, use fur only one-half the length of the shuttle. Be sure the ends of the fur are rounded to avoid hanging the filling.

On continuous-filament yarn, use fur the full length of the shuttle. Check the tension on the filling on a full bobbin with a tensiometer. Then remove the full bobbin and put in a bobbin only half full of filling. Trim the shuttle fur carefully until the tensiometer records the same tension on this bobbin as on a full bobbin.

Remove the half-full bobbin, and put in an almost-empty bobbin. Again trim the shuttle fur to register the same tension as on a full bobbin. Determine a standard tension, and use this tension on all looms. Check the tension regularly with a tensiometer.

Loomfixers should not be allowed to trim the fur indiscriminately because shuttle fur will be wasted and shuttle-fur cost will be excessive. Usually it's best to have only one man responsible for the shuttle tension.

With this careful checking, tight picks will be eliminated but checkstraps and boxes must be set accurately to avoid slack picks. Of course your filling must be wound accurately. Use a bunch and taper used for low-twist filament-rayon yarns. Be sure the yarn isn't wound back over the bunch.

How to Figure Incentives for Batteryhands

Technical Editor:

How can we calculate the time cycles and loom visits preparatory to setting up an incentive system for batteryhands? (1286)

As in most textile operations, a number of variables appear in battery-filling jobs that make it hard to lay out these jobs without considering the variables. In different mills and on different jobs in the same mill, there will be a difference in the floor space to be covered, the distance to the source of supply, the type of filling replenishment, and variations in bobbin size.

A stop watch can be used to determine the time needed in covering floor space and also in getting a fresh supply of filling. Some mills have a box or pinboard on every loom.

The best way to determine the average running time of a bobbin is to time, with a stop watch, at least four representative bobbins of a given style.

If the loom is set to replenish filling only at a run-out, the jobload can be easily figured; but if the loom changes bobbins at filling breaks, an allowance will have to be made for replacing the knockouts.

Probably the best procedure for laying out jobs is to determine the number of bobbins a batteryhand can plug in an hour, allowing about 15% for personal needs, and then divide by 60 to get a constant to figure all the jobs. You may need several constants if there is a big difference in layout of looms, in types of looms and fabrics, or other unusual conditions.

If you decide that a batteryhand can plug 600 bobbins an hour, the constant will be 10. All that is needed to lay out a job is to obtain the average running time in minutes of a bobbin for a given style, and multiply this time by 10. If a bobbin will run 5 mins., the jobload will be 50 batteries; if it runs 3½ mins., the jobload will be 35 batteries.

For incentive pay, the batteryhand can be paid in proportion to the production of the looms as determined by the pick counters. For base pay, a figure can be arrived at by figuring each loom at expected efficiency.

Size Rayon and Wool With Flake Glue

Technical Editor:

What sizing ingredients should we use for wool-rayon blends, and how should we prepare the bath? (1267)

One of the best agents for sizing wool-rayon blends is a flake form of hide glue. This agent is expensive and is used mostly on fine high-grade yarns.

Starches are more commonly used, and they may be fortified with flake glue. Potato, corn starch, or tapioca are used in most mills. Some mills have found that homogenizing their size compounds has given good results.

Mix an antiseptic with the size to prevent mildew. Thymol, resorcinol, or copper sulfate may be used to treat the size.

The equipment necessary to prepare the size consists of a size tank with an agitator and a steam supply. Electric controls are used to time the cooking cycle and temperature.

After cooking, the size is pumped to a storage tank with a controlled temperature.

The size must be kept at the correct temperature in the slasher size pan. A recording viscometer will show the viscosity of the size and help to insure a uniform size content.

Vaporized Metals Change Fabric Properties

Technical Editor:

Can you tell us anything about a European process of metallizing fabrics? (1287)

There is a German method that has been used to deposit gold, silver, chromium, aluminum, and iridescent interference colors on Perlon.

The process consists of passing the fabric through a high-vaccum boiler about 7 ft. long in which the chosen metal is electrolytically vaporized. The cloth acts as a condenser for the metallic vapors, which become firmly attached to the fibers as the vapor reverts to the solid state. The metallic film is about 1/1,000 mm. thick.

The metallized fabrics retain their original porosity and have a high luster. Their light reflectance is greatly increased—a safety factor in outerwear for night pedestrians.

Depending upon the metal used, there seems to be a shielding effect from some types of atomic radiation and also some protection from magnetic fields and high-frequency currents. Fabrics that have been metallized with cadmium, for instance, exhibit a strong shielding effect against neutron rays.

Aluminum produces an insulating effect when vaporized on the fabrics without noticeably increasing weight or bulk.

Other experiments are under way to produce metallized textiles that are conductors of electricity or that can be used for radar antennas or reflectors in signal systems. The gold-plated material has already been used as fillings for unbreakable dentures.

Commercial production of fabrics metallized by this vacuum process is going forward in Germany and Switzerland at present.

Humanics — A TW Brief

Are You An Idea Squelcher?

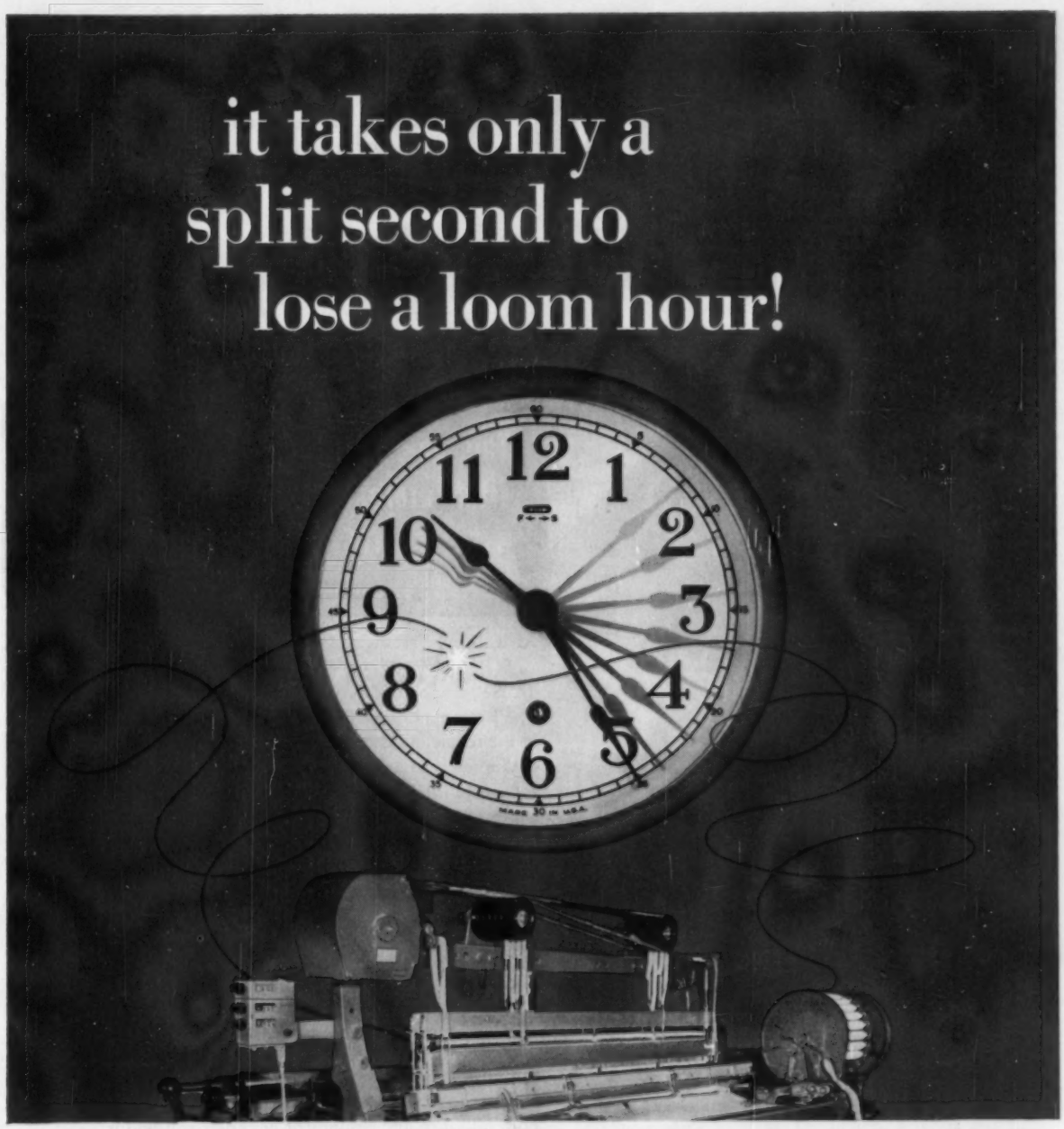
Many supervisors close their minds to new ideas. Anything new may mean extra work, a rearrangement of schedule, a change of methods, etc. The usual argument is: "We've always done it this way; so why change now?"

Basically, the reason we do not encourage new ideas is that they jar us out of the old rut and force us to adapt ourselves to a changed condition. Also, many supervisors resist any change that might decrease their prestige or the scope of their authority; and this resistance makes them immediately find fault with any suggestion made by a subordinate.

To welcome and give full consideration to all new ideas will greatly benefit any supervisor. Of course, a majority of new, untried ideas are impractical for one reason or another; but by reviewing them with an open mind the supervisor can separate the wheat from the chaff.

Giving full credit for ideas accepted and explaining the reason for any rejection will keep the line open and encourage creative thinking.

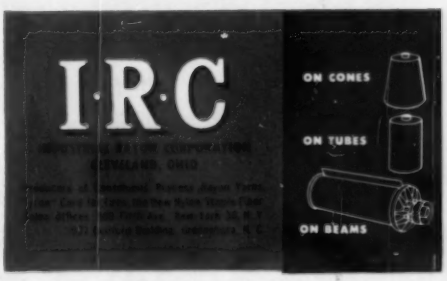
it takes only a split second to lose a loom hour!



Ever count how much money filling breaks cost *your* plant each year?

But there's an easy way out! Because with IRC Continuous Process Rayon it's a snap to beat breakdowns. Unequalled uniformity is the reason. Human hands never touch this yarn through the entire processing, eliminating knots, slubs, broken filaments, or slack twist—all major causes of filling breaks. And IRC Continuous Process Rayon always dyes as perfectly as any fiber ever made.

So beat the clock, do as other weavers of critical fabrics do—specify IRC Continuous Process Rayon. It costs no more than ordinary rayon.



Use IRC Continuous Process Rayon...uniform mile after mile . . . perfect inch by inch . . . and it costs no more!

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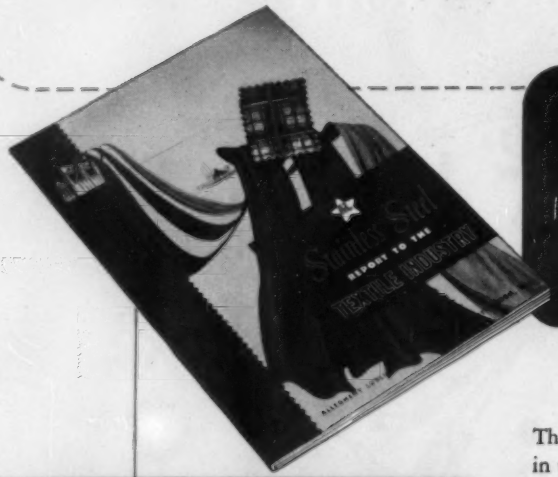
Allegheny Ludlum reports to the Textile Industry



This new 40-page booklet will be of vital interest to everyone concerned with textile manufacturing today.

CONTENTS

Yarn Manufacture

Warp Preparation

Weave Room

Wet Processing

The Technology of AL Stainless Steel

The latest applications of Allegheny Stainless Steel in the textile industry are making news—news that is of interest to industry men who are looking for ways to reduce mill costs and improve quality and production.

Whether your interest is in yarn manufacture, weaving, dyeing, bleaching or finishing, this 40-page, full color report shows clearly how stainless steel is able to do the tough jobs that break the backs of other materials . . . how its long life in service means long-term economy on *all* jobs.

Included too, is a complete section on the technology of Allegheny Stainless Steel as it relates to problems in the textile field. You can see where and how to use it to best advantage, and what grade to select to meet each individual requirement. Both mill men and equipment designers will find it loaded with up-to-date, useful facts.

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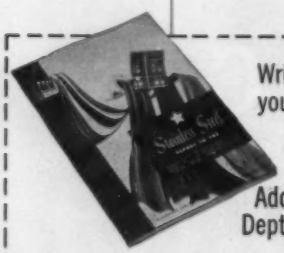

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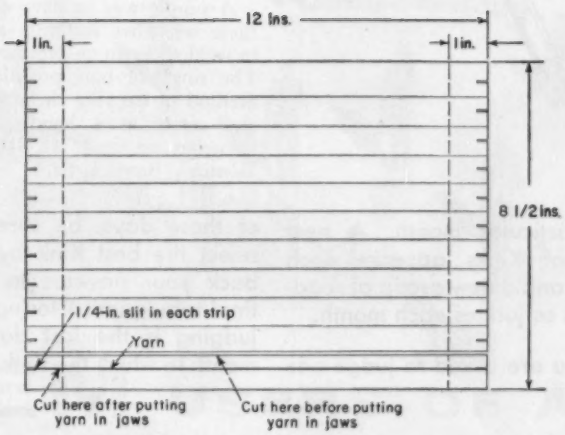


How To Mount Synthetics Yarns for Break Tests

Man-made fibers, which are smooth, strong, and relatively soft, present difficulties in testing for tensile strength. The use of the regular flat jaws in the Instron tester causes many jaw breaks; and subjecting the yarns to sufficient pressure to hold them in the flat jaws changes the cross section, flattens the filaments, and reduces the breaking strength.

Here's how we worked out an improved technique for laboratory breaking-strength tests:

First, we ran breaking-strength tests on 30-den. acetate, 300-den. viscose, and 270-den. Fortisan. Three different methods were used to grip the specimens in the tester jaws. The yarns were held in (1) ordinary flat steel jaws, (2) flat steel jaws with the yarns mounted on ¾x12-in. cardboard strips, and (3) grooved flat steel jaws with the yarn cemented on cardboard strips and inserted in the tester so that the clamps did not touch the yarn.

A 10-in.-gauge length on the Instron tester was used for all tests, and 20 tests were made on each yarn.

Of the three kinds of mountings, the second method produced the highest breaking strengths, particularly for viscose, where the increase in strength was 26% over tests with the flat jaws. Fortisan, on the other hand, seemed quite insensitive to the method of gripping.

The second method also gave the lowest number of jaw breaks: 42% fewer than the flat-jaw method. Elongation-to-break was greater for the second method, being 3.7% greater than for the flat jaws.

While the coefficient of variation for viscose and Fortisan was considerably less for the second method than for the first, it was higher for acetate.

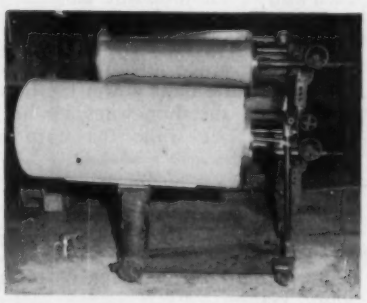
We found the use of individual cardboard strips to be preferable to cementing similar cardboard pads to the flat jaws, since there is a question as to how long the padding should be used before renewing. The cardboard strip is used but once with the second method.

To make the pads, the cardboard is marked off into ¾x12-in. strips, as illustrated, and a ¼-in. slit is made in the ends of each strip. The yarn is either threaded continuously from one strip to the next or single lengths are used, depending upon the method of sampling.

The strips are cut off one by one and mounted in the jaws of the tester as needed. After mounting and clamping, the ends of the strips are cut off about 1 in. from each jaw. The yarn and cardboard pad are adjusted for initial tension, and the test is then made in the regular manner.

Some kinds of very soft and smooth monofilament yarn cannot be successfully tested by any one of the three techniques described. In the case of polyethylene monofilament, for instance, satisfactory results can be obtained by sticking the yarn to the cardboard with No. 202 "Scotch" masking tape. The tape will protect the soft monofilament and allow the yarn to be broken without slippage in the jaws of the tester. (K-3411)

H. A. Mereness, Charlottesville, Va.



Hydraulic Jack on a Truck Doffs Beams at Slashers

On our double-head slashers, one yarn beam is in a low position and the second beam is over the first. Consequently, it's hard to get one device to doff both beams.

But we now use a hydraulic jack on a dolly truck to do the job. The jack swivels under the bottom beam easily and removes it. It can also be raised quickly to remove the top beam.

To remove a beam, the center section of the jack lifts the beam so that the journals slip out of the slasher stands. Then a pipe strapped to the truck handle is slipped over one journal of the beam by moving the handle.

Both beams are removed from the slasher with little manual effort. Then they're rolled to the storage area while still on the truck. (K-3277)

Blair Mills, Belton, S. C.

March Prize-Winning Kink

The best Kink published in the March issue of TEXTILE WORLD, according to our reader-judges, was:

"Weld Setscrew Wrenches To a Key Ring for Easy Use"

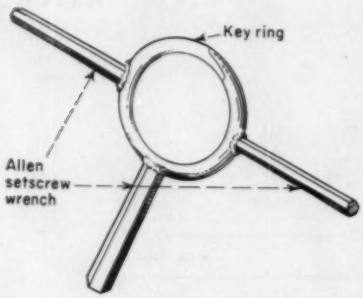
By H. E. Wenrich, Berwick, Pa.

The winner is being sent a check for $25 with the compliments of TEXTILE WORLD.

The prize-winning Kink is reprinted at the right.

Each month TEXTILE WORLD awards $25 to the submitter of the Kink judged by a panel of over 300 mill men as the best for that particular month. A new batch of Kinks appears each month, and a new group of readers acts as judges each month.

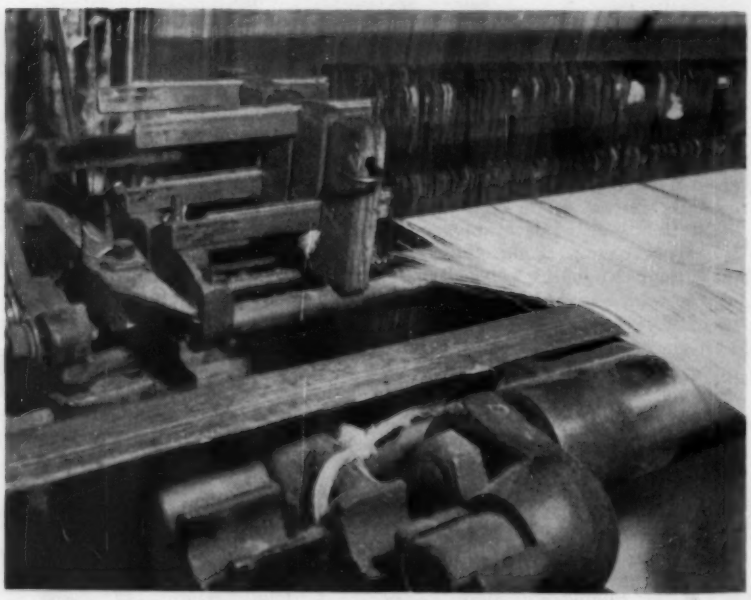
If you are asked to judge one of these days, be sure to help select the best Kink by sending back your answers in time for final tabulation. Closing date for judging is the last day of the month in which the Kink appears.



Weld Setscrew Wrenches To a Key Ring for Easy Use

A loomfixer needs several sizes of Allen setscrew wrenches on his job. Also, mechanics and others use these wrenches constantly. The wrenches are small, and sometimes it is hard to find the correct size when needed.

A simple way to have a variety of these wrenches instantly available is to weld them to an ordinary key ring. The ring not only provides an easy method of carrying the wrenches but also serves as a handle when the wrenches are used. (K-3162) *H. E. Wenrich, Berwick, Pa.*



Lease Warps at Looms This Quick, Easy Way

We tie most of our warps in the weave room with stationary tying-in machines. Because weave-room efficiency depends to a great extent on straight warps, we necessarily do everything possible to keep the warps straight during tying.

But for a warp to be tied properly, it must first be leased properly. Therefore we've developed better methods of leasing. One problem we formerly had was holding the drop-wire bars in a sturdy position while the warp ends were separated and the lease rods were put in.

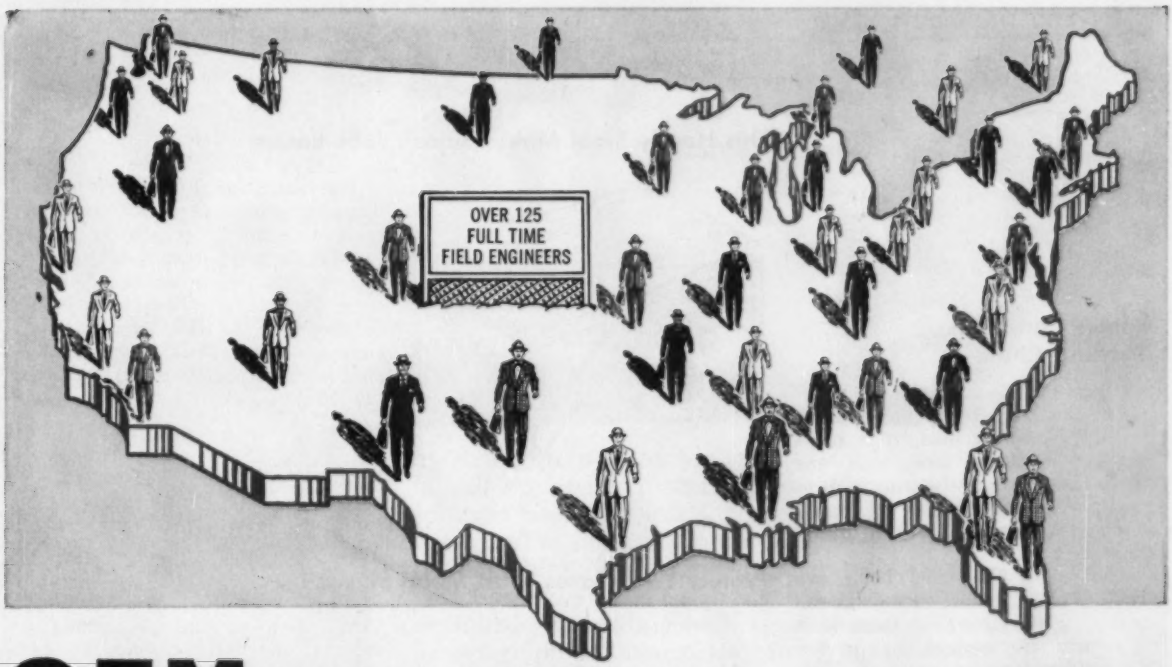
Now we hold the drop-wire bars firmly with a wood block, as shown in the photograph. The block is made from a piece of plywood ½ in. thick, 4 ins. wide, and 6 ins. long.

Four slots 1/16 in. wider than the drop-wire bars are cut 2½ ins. deep in the block. The slots are spaced exactly as the bars are spaced in the stop-motion stand. A 1/16-in. hole is drilled through the length of the block 1 in. from the top of the slotted edge. A ⅛-in.-dia. steel rod 6½ ins. long with a hook on one end is cut to go into the drilled hole.

To use the block, the drop-wire-bar and caps are loosened and all bars are placed on the bar stand. Then the block is slipped under the bars sideways and is raised up with the bars in the four slots. A block is used at each end of the drop-wire bars.

The warp is leased from the drop wires by raising the two bars of drop wires to be leased and inserting the steel pin in the block under the bars. As a result, the drop wires are held firmly in place while the warp is leased.

The block is made in our mill shop at little cost. It is quickly placed on a loom when it is needed and is just as quickly removed. (K-3396) *John P. King Mfg. Co., Augusta, Ga.*



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have available Bellows Nation-Wide Field Service

Original equipment manufacturers incorporating fluid power circuits in their products to meet the growing demand for higher output and lower cost face two problems:

Original Design . . . and Field Service

Bellows Air Motors and other Bellows "work devices" lend themselves readily to OEM design. For example, all operating valves, actuating elements, speed control regulators are built into the units, simplifying circuit and installation problems. All units are compact, streamlined, fit well into crowded quarters. All units can be positively interlocked with reciprocating machine elements.

More than 125 Bellows Field Engineers devoting their full time to the sales and service of Bellows equipment. One or more Field Engineers in every major industrial area in the United States and Canada . . . and in Australia, Europe and the British Isles provide certain assurance that any service requirement on any Bellows unit will be handled promptly.

And of equal importance — every Bellows Field Engineer is fully capable of working with you and your engineers in developing the most effective and most economical way of incorporating "fluid power" control and operation into your product.

We have prepared a new booklet showing a little of the widespread usage of Bellows Air Motors and related "fluid-power" devices in many OEM products. It makes interesting reading for the manufacturer looking for ways to increase the productive efficiency of his product. It is free on request. Write Dept. TW-557, The Bellows Co., Akron 9, Ohio. In Canada: Bellows Pneumatic Devices of Canada, Ltd., Toronto, Ontario.

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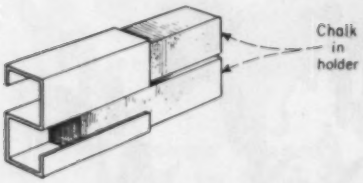


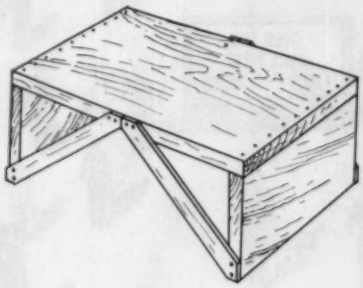
Holder Conserves Marking Chalk

Where chalk is used in marking roving or yarn to identify the operator or the type of product, it is often necessary to make more than one mark. Two marks of the same color or a combination of different colors may require two separate chalking operations.

The holder illustrated holds two sticks of chalk so that two marks can be made at the same time. In addition to reducing the work of the operator, the holder prevents waste of chalk from breakage or discard of short pieces. The shape provides a firm grip on the chalk but lets the chalk advance until all but a very small length has been used.

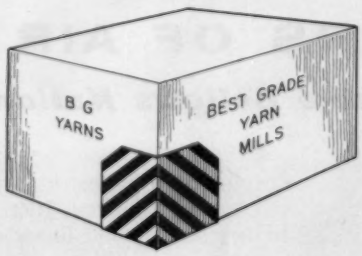
The holder is made from 0.02-in. mild steel or shim stock shaped to fit the chalk used in the mill. The holder shown in the drawing was made for two sticks of $\frac{3}{8}$-in. square-section chalk, and it gives good results. (K-3201).

This Handy Stool Makes Smash Jobs Easier



The task of straightening out warps, dropping drop wires, and tying in break-outs can be very tiring. An easily made wooden stool that can be carried from loom to loom makes these jobs easier. The smash hand or drop-wire girl can stand on the stool and reach the drop wires and ends without stretching or straining. (K-3165)

Protect Yarn Cases With Metal Shield



We store our yarn for knitting in cartons, and these cartons are frequently damaged by lift trucks as they travel around corners. We stopped the damage by making steel shields that fit over the corners of the cartons.

The shields are made from sheet steel bent at a 90° angle. A base is welded to the bottom of the shield to keep it in position.

The shield is painted with black and yellow stripes for easy visibility. If a carton is struck now, it is not damaged and the yarn inside stays in perfect shape. (K-3307)

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What Is a Kink?

Any idea that will

- Cut costs
- Improve quality
- Reduce work
- Increase production
- Make work easier

The idea may be one for improving machines, some attachment for a machine, a short-cut way of doing something, a labor-saving device—any idea at all that helps a mill man run his job better or easier.

Send in your Kink now. There is always a contest going on.

RULES OF CONTEST

1. No limit to number of entries.
2. New $25 prize contest every month, $500 prize contest for the year. Monthly contest confined to Kinks published that month, yearly to those published in calendar year 1957.
3. All Kinks paid for on acceptance; extra payment for photographs. Drawings need not be finished (clear detailed pencil sketches will do).
4. Previously published material not eligible for prizes.
5. Unless you advise to contrary, we assume we may sign your name to Kink when published.
6. Prize winners will be selected by readers, a different group each time. At least 300 will be asked to select preferred Kinks in each issue. Their votes will select the best Kings, and their decision will be final. In cases of ties, duplicate prizes will be awarded.

Send Kinks to:
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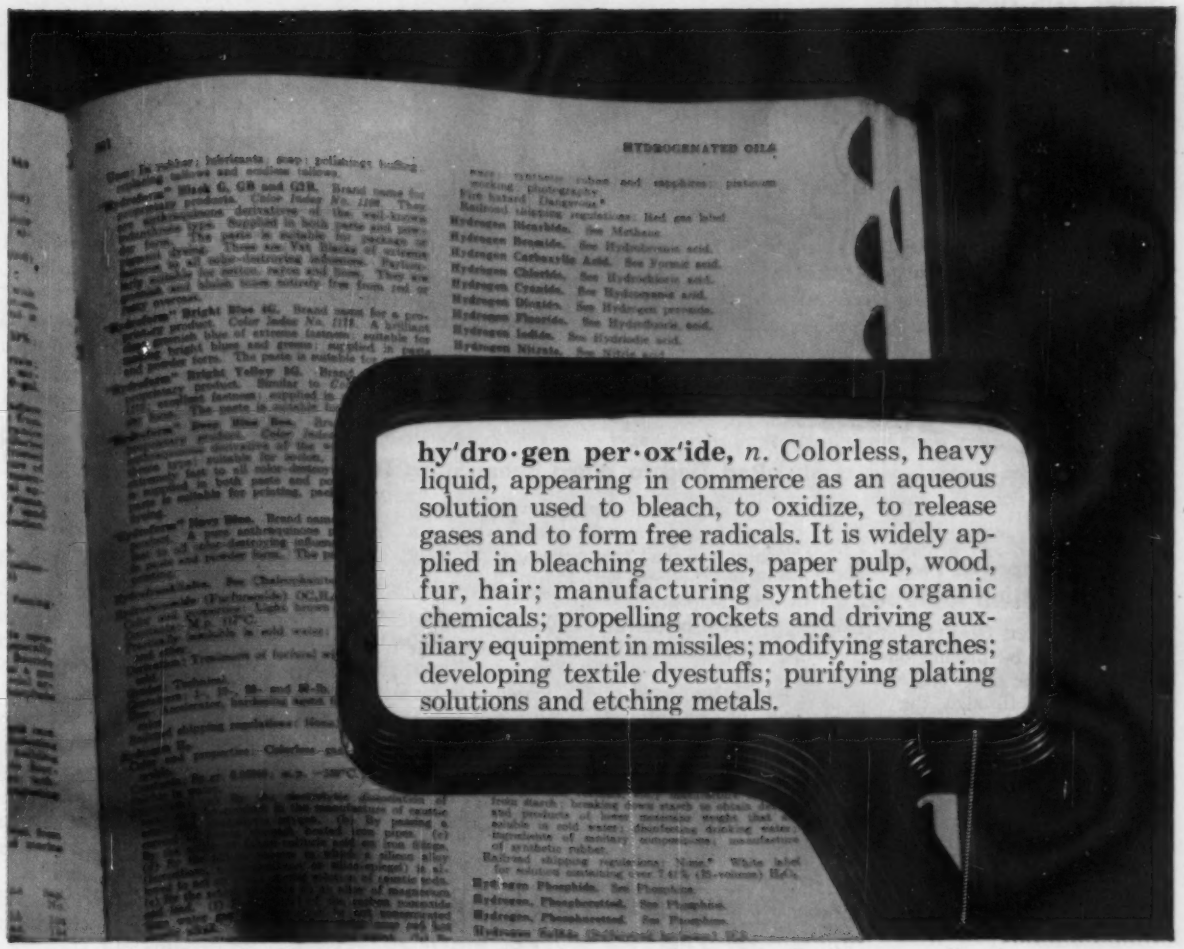
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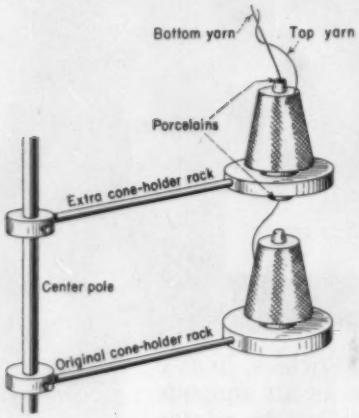


How To Improve Twisting At the Knitting Machine

Some knitters twist yarn at the knitting machine by placing one cone of yarn above the other and running the bottom yarn through the top cone. This idea presents some difficulties, but it pays off in more-even fabrics when two colors or two different yarns are used together at the same yarn feeder.

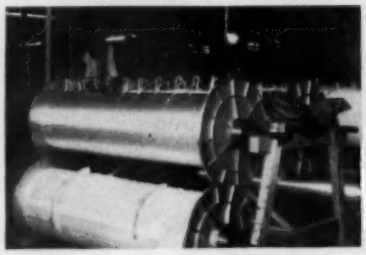
Here's how you can do the job successfully. Slide a second cone-holder rack over the center bobbin pole of the machine. You may have to use a longer bobbin pole if there is not enough room, but there generally is room. Anchor the cone holders about 16 ins. above the original cone holders.

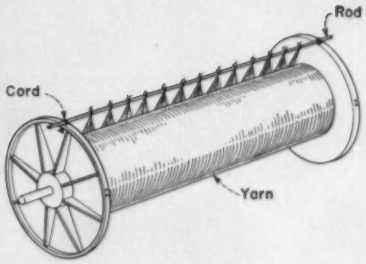
Drill a hole in the center of each cone holder, and fit porcelains in these holes. Push a porcelain in the top of each cone to be used on the top cone holders. Thread the yarn through the top cone holder and through the top cone, and then run both yarns to the needles through a single yarn feed. (K-3314)

Cover Take-Up Rolls To Prevent Slipping

When knitting machine take-up rolls have been used for some time, they become slick and won't pull the fabric from the needles as they should. To eliminate this trouble, wrap the take-up rolls with fine-gauge sandpaper.

Use tacks if the rolls are wood; fasten the paper with glue if the rolls are steel. When the paper becomes worn, it can be easily removed. (K-3256)



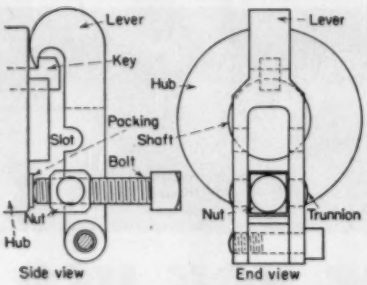


Rod Tied to Warp Beam Stops Tangling and Slipping

Tangles and slippage of rayon warp ends used to take place when we beamed our rayon slasher. Sticking down the ends with gummed tape did not help much.

We solved the problem by drilling several $\frac{7}{16}$-in.-dia. holes through the beam flanges and tying a $\frac{3}{8}$-in. bar across the beam. The ends are then tied to the bar, which anchors them securely and prevents tangles.

The bar can be removed easily when we are ready for weaving. (K-3242) *Hokao, Fukaya, Japan*



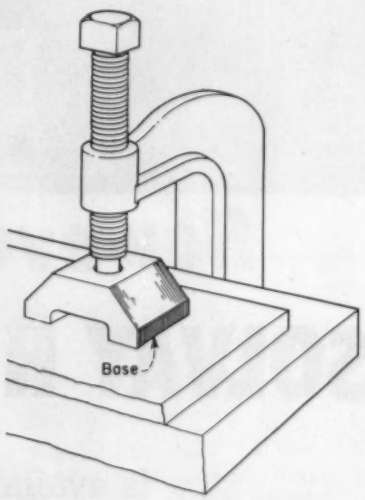
Lever-Type Key Puller Can Be Used in Close Place

A gib-head key is used on some textile machinery to secure shafts because it is easier to remove than the straight-head key. But any key will sometimes be hard to remove because of rust and corrosion.

A powerful key puller that is very useful where working space is limited is shown in the sketch. The puller should be made from high-tensile steel and the hook portion hardened. (K-3285) *C. T. Bower, London, England*

$5 to $10 for any Kink accepted for publication. Each one will be entered in the $25 and $500 prizewinner contest.

Send in your Kink now.



Hold Material Better With This Clamp Base

In clamping material, such as boards or other large pieces, it is desirable to exert pressure over as much of the area as possible.

Bases, or feet, for the clamps can be made in varying sizes and shapes for different jobs, as shown in the sketch. The bases should be made of steel to withstand the pressure exerted on them. (K-3287) *Chas. H. Willey, Penacook, N. H.*

Helpful Answers to Caustic Questions

As a leading supplier of Caustic Soda, Columbia-Southern is asked many questions each month about this versatile "workhorse" alkali. While the answers probably are not completely new to every Caustic user, they do re-emphasize certain basic points that shouldn't be forgotten. We hope that you will find this series interesting and helpfully informative.

In how many different forms does Caustic come?

The four commonest forms of Caustic are anhydrous solid and flake (available in several particle sizes), and liquid concentrations of 50% and 73% strengths.

How can I determine my most economical Caustic buy?

So much depends on individual processing requirements that any flat answer might be misleading. The most important cost factors for your consideration are the purchase price of the material, transportation costs, unloading costs, labor costs for process handling, and investment cost of equipment required for unloading, storage and process handling. In general, equipment for handling solid or flake Caustic will be least costly, that required for 50% liquor next, and the equipment for handling 73% more expensive. Handling costs per ton of NaOH, however, will be in exactly the reverse order.

A more thorough way to get a clear cost picture of the best Caustic for your needs is to contact Columbia-Southern for the prompt services of our experienced Caustic Soda specialists. Just call, write or wire our Pittsburgh address . . . at no obligation, of course.

Is Caustic dangerous to handle?

Like most other chemicals, Caustic merits proper respect. Shipping improvements like the tank car dome platform (first standardized for all Caustic shipments by Columbia-Southern) have made unloading and initial handling much safer than in the past. As an elementary precaution, fast-valve showers and eye fountains should be readily accessible to all personnel who might come into contact with Caustic. Columbia-Southern will be happy to mail you copies of our up-to-date booklet, *Unloading and Handling Caustic Soda.* This handbook covers in detail such basic points as use of proper protective clothing, inspection of storage and piping facilities, tank car handling, steaming and dissolving procedures, complete stocking of First Aid cabinets, and the like.

Has Caustic Soda been used for a long time?

Caustic has one of the longest chemical pedigrees known. Various authorities agree in placing its earliest use among the Egyptians, who used the alkali in making cleansers. These ancient peoples produced Caustic, or lye, by utilizing the action of lime on solutions of plant ash sodas. Causticizing was effected cold, in the presence of a small amount of water, with the lye gradually separated by filtration through a cloth.

Is there more than one basic method of producing Caustic Soda today?

Yes. In the most popular electrolytic method, an electric current is passed through a sodium chloride brine solution contained in specially designed cells. Chlorine gas forms at the cell's anode, and a Caustic Soda solution collects at the cathode. This low concentration liquor is evaporated to yield the various commercial concentrations desired. The older lime-soda method of manufacture, not far removed in theory from the Egyptian process, utilizes the treatment of a soda ash solution with slaked lime. The resulting chemical reaction produces a weak Caustic Soda solution and a precipitate of Calcium Carbonate, which is filtered out. As in the electrolytic method, the Caustic solution is evaporated and purified to obtain commercial concentrations.

BIG SPLASH SAVES CUSTOMERS' DOLLARS. Advanced-design Columbia-Southern barges like the big beauty below carry Caustic along inland waterways, do a better job of protecting cargo purity, and unload more quickly and easily. Can you accept economical water delivery?

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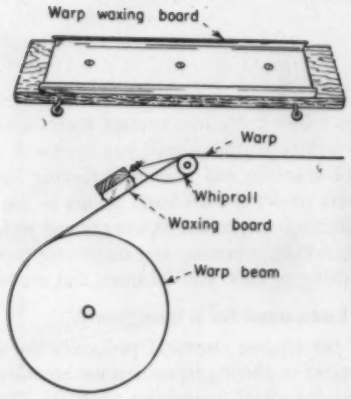


Make a Waxing Board For Paper Warps

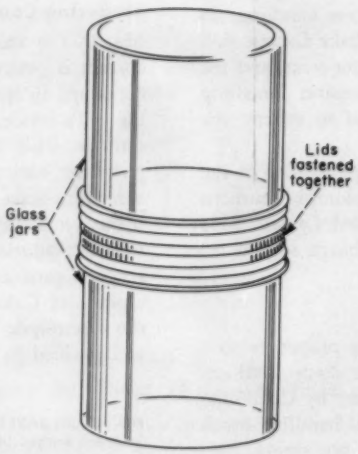
In weaving slip-cover material or other fabrics with a kraft-paper warp, it is sometimes necessary to wax the yarn at the loom. This waxing can be done very easily with a waxing board. The board should be a straight strip of wood 2½ ins. wide and a bit longer than the warp. The pan is a strip of light sheet metal with its long edges bent to form a trough.

The paraffin cakes used for waxing are usually 5x2½x¾ ins., and the inside of the pan should clamp the cakes lightly. With the cakes in the pan, turn the board over with the wax resting against the warp and tie the board to the whiproll with cord. The rocking motion of the beam will impart enough motion to the warp to wax it. (K-3063) *Chas. S. Bicksler, Lancaster, Pa.*

Grill Improves Cleaning Operation in Opening Room

We improve our opening-room operations by installing grills in the pneumatic pipes leading from the cleaners. A considerable amount of trash, which ordinarily would be carried forward, falls through the openings in the grill.

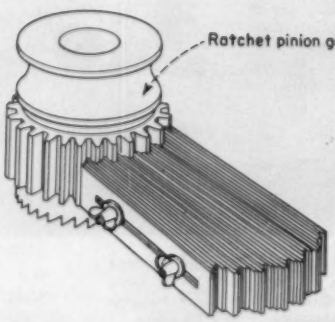
In practice, a box is placed under the grill to catch the trash, but it was removed for this photo so that the droppings would be visible. (K-3420) *Alma Mills, Gaffney, S. C.*



Duplex Storage Jars Require Less Space

Where small machine parts or nuts, washers, bolts, and screws are stored in glass jars, it is hard to stack the jars without the top jars falling. The jars can be securely stacked, however, by soldering or gluing the lids together back to back.

To open the jars, unscrew the lid from the bottom jar first so that the contents will not spill. In addition to holding the jars in stacked position, the duplex arrangement is useful to keep related articles together although in separate jars. (K-3170)



Gauge To Check Let-Offs Is Made From Cards

The ratchet pinion gears and plunger racks on our Crompton & Knowles automatic precision let-offs wear after they have run for a long time. Then the let-offs stick, and wavy cloth is woven.

We now use a gauge to measure the wear of the ratchet pinion gear, and we discard worn gears. The gauge is made from a stack of cards about 2 ins. high. The center of each card is slotted 2 ins. long and ⅛ in. wide. Then the cards are fastened together with two ⅛-in bolts, four cut washers, and two thumbscrews.

When a let-off is being rebuilt, we loosen the thumbscrews and fit the ends of the stack of cards to the contour of the ratchet pinion gear. The thumbscrews are fastened with the cards in this position.

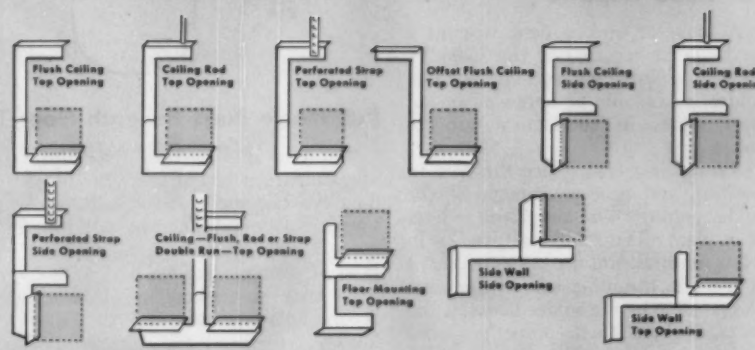
The ends of the cards are placed against a new ratchet pinion gear. In this way, the amount of wear of the old gear is easily determined.

Now we discard badly worn gears and keep ones that are still serviceable. Therefore, we have reduced second-quality cloth caused by wavy cloth and thick and thin places at little cost. (K-3402) *H. J. Haas, Martinsburg, W. Va.*

SQUARE D's NEW HANGER

MAKES THIS LAY-IN DUCT STRONGEST— FASTEST AND EASIEST TO INSTALL!

HERE ARE 11 OF THE MORE THAN 20 WAYS YOU CAN HANG SQUARE D WIREWAYS!..


Flush Ceiling Top Opening
Ceiling Rod Top Opening
Perforated Strap Top Opening
Offset Flush Ceiling Top Opening
Flush Ceiling Side Opening
Ceiling Rod Side Opening
Perforated Strap Side Opening
Ceiling—Flush, Rod or Strap Double Run—Top Opening
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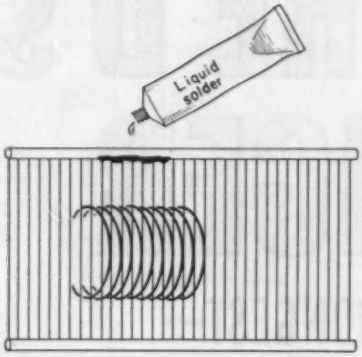
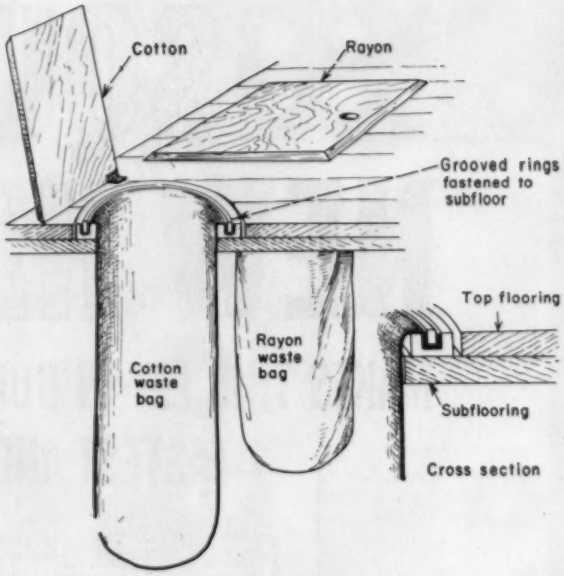


Liquid Solder Is Useful For Reed Repairs

A loose or broken dent wire in a reed can be repaired at the loom by the use of liquid solder. The metallic solder is available at hardware or variety stores in economical squeeze tubes.

To repair a reed, place the wire in position and squeeze enough of the solder onto the wire and frame to hold it in place. The solder will harden in a few minutes, and the same treatment is given to the other side of the wire. Work some of the solder between the wires to keep them properly spaced and to strengthen them.

If a number of wires are loose or broken, they can be correctly spaced and held in place by inserting a coil spring in the air spaces. If a suitable spring is not available, pieces of paper of the desired thickness can be used. (K-2962)



Put Waste Bags Beneath Floor To Save Space

Our yarn mill has one floor and a a basement; in recent years the upper floor has become crowded with additional machinery. There is not much space left for waste bins or any other kind of storage. Yet we have to keep our waste somewhere until enough accumulates to store in the waste house.

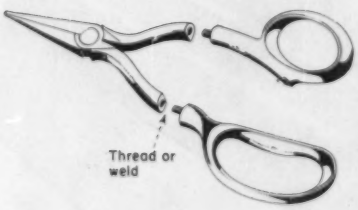
We solved the problem by cutting some round holes through both the floor and subfloor alongside one wall. Then, over each round hole we cut a slightly larger round hole through the top flooring only. Next, we fastened grooved steel rings in the recess around the bottom holes and clamped waste bags to these rings by pressing a second ring into the groove.

Lids were hinged to the floor and marked as to the kind of waste the bag beneath contains. The bags were stamped with similar markings.

Our operators now dump waste through these holes into the bags; and when the bags are full, they are released and hauled to the waste house.

The arrangement gives plenty of storage space for the waste and at the same time permits the floor to be used for other purposes.

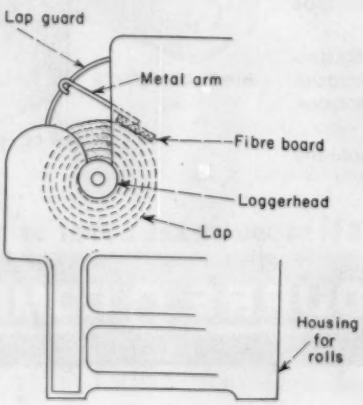
Our lids, made of beveled plywood, stick up slightly above the floor level. We are planning to replace them with thin steel plates or recess them in the floor to eliminate the possibility of operators tripping over them. (K-3311)



Hold Small Pliers Easier With Scissor Grips

For holding small objects, especially in hard-to-reach places, a pair of scissor grips will make needle-nose pliers more useful.

Cut the grips from old discarded scissors or shears and thread them to fit the sawed-off handles of the pliers, or make the splice by welding. (K-3378) *H. J. Haas, Martinsburg, W. Va.*



Board on Pickers Prevents Split Laps

We used to have trouble with picker laps splitting at the cards. We solved the problem by attaching a piece of smooth 3x37¾-in. fibre board to the lap guard of our pickers, as illustrated. If lap guards are not used, brackets to hold the board can be welded on top of the loggerheads.

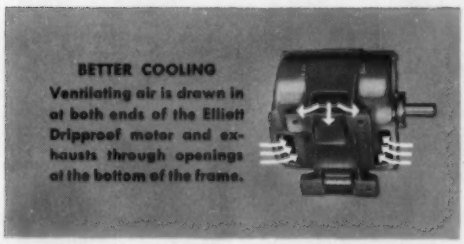
The board rests on the lap as the stock is wound and smooths the outer surface of the lap. Since making this modification, we have had no more split laps. (K-3371) *S. M. Shaw, India*

Inside and Outside . . . entirely new

DRIPPROOF TYPE FRAMES 182-326U

the NEW Elliott C-W Dripproof Motor

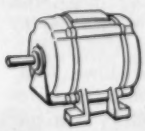
BALANCED DESIGN assures dependable performance


BETTER COOLING
Ventilating air is drawn in at both ends of the Elliott Dripproof motor and exhausts through openings at the bottom of the frame.

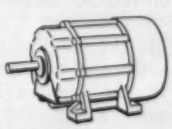
The *balanced* design of the new Elliott C-W type N motors provides the *best* in mechanical protection, the *best* in insulation, the *best* in bearings, the *best* in rigid construction. These motors produce more horsepower per pound, require less space, less maintenance, have longer service life. Every rotor is dynamically balanced. Rigid cast frames assure correct alignment, resist corrosion and mechanical abuse. Highly effective cooling eliminates troublesome hot spots.

The design illustrated above is dripproof—and virtually splashproof as well. Yet ingenious design has provided ample passages for cooling air. Other types of enclosures providing even greater protection are available for service where conditions are extremely severe.

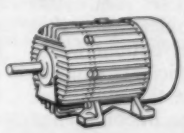
OTHER C-W TYPE N MOTOR ENCLOSURES



Totally-enclosed non-ventilated



Totally-enclosed, fan-cooled Frames 256 U and smaller



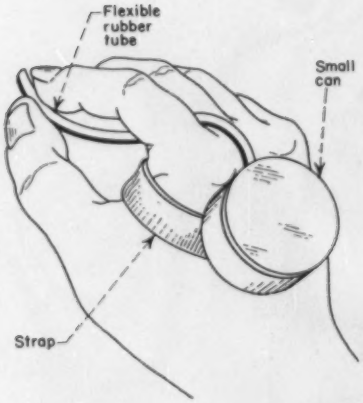
Totally-enclosed, fan-cooled Frames 284U-326U

ELLIOTT Company

CROCKER-WHEELER DIVISION

For complete details, send for new booklet. *WRITE* Elliott Company, Crocker-Wheeler Division, Jeannette, Pa.

W6-5



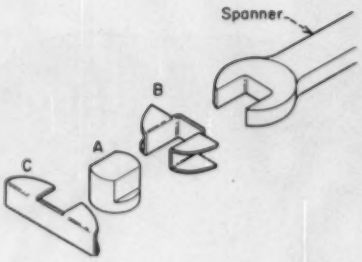
Piece Up Yarn Without Knots The Easy Way With One Hand

There are special applicators for applying latex compounds to yarn to join two ends together, but we've discovered a better way of applying the latex.

We put the compound in a small tin can strapped to the back of the operator's hand. A flexible rubber tube about 4 ins. long is pushed into a hole at the side of the can.

The rubber tube is placed between the first and second finger so that the end of the tube is within reach of the thumb and forefinger. The tube is then lowered to permit the latex to come in contact with the yarn while the tube is squeezed with the two fingers. The other hand is left free and clean to manipulate the teased-out ends of the yarns.

If the rubber tubing is too large or the latex flows too freely, place a small ball in the tube and force a cap over the end of the tube to keep the ball from slipping out the open end. (K-3220) *H. J. Haas, Martinsburg, W. Va.*



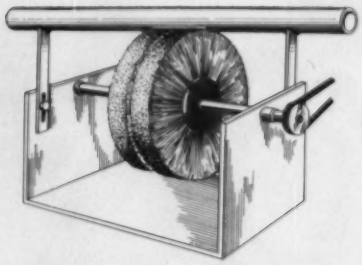
Spanner Packing Grips Nonstandard Nuts

Nonstandard nuts are fitted to many pieces of machinery because of design requirements. A typical example of a special nut, shown at A in the sketch, has a nonstandard distance across the flats so that normal spanners do not fit the nut snugly. Adjustable spanners can be used in some circumstances, but they are not always big enough.

An efficient packing for the jaws of a solid spanner is shown at *B*. To make this packing, a piece of sheet steel is bent to form a U-section and then sawed to the shape shown at *C*. The thickness of the steel makes up the difference in width between the spanner jaws and the width across the flats of the nut.

The next stage in making the packing is to bend it to the shape shown at *B*, after which it should be case-hardened. The springy construction keeps the packing clipped in place on the spanner while in use..

By making up the packing from various thicknesses of sheet metal, you can use one spanner for most odd flat dimensions. (K-3270) *Clifford T. Bower, London, England.*



Knurled-Roll Buffer Cuts Cost of Overhauling

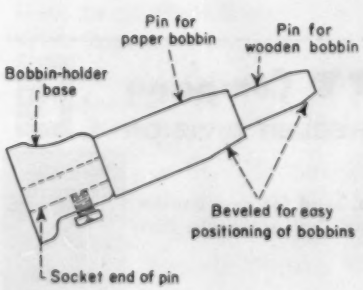
We used to clean knurled rolls by hand, which was a long and tedious process. To save time, we built a roll buffer that is driven by a small electric motor and V-belt, and it works fine. Here's how to make one like it:

Use a discarded winder box about 8 ins. long, 5 ins. wide, and 5 ins. high for the base. Cut a slot in one end of two pieces of ¼x1½x5-in. strap iron, and weld a piece of pipe to the other end of each piece as shown. The pipe should be 14 ins. long and have an inside diameter about ⅛ in. greater than the diameter of the rolls to be cleaned. Then cut a 2-in. slot in the center of the pipe.

Bolt a 6-in. wire brush on either side of a 3-in.-dia. disk that is ⅜ in. thick. Mount the brush on a shaft, and adjust the pipe so that the brushes touch the slot. Then feed the rolls into the pipe; and as they reach the slot, the brushes will clean them. There should be enough pressure on the rolls to turn them.

You will find that this buffer will pay for itself many times over the first time you overhaul your spinning frames. (K-3321) *Calvin Wright, Edenton, N. C.*

Paper and Wooden Bobbins Fit Two-Way Holder Pin



Recently, our plant began installing new roller-bearing adapter-type spinning spindles. The large-bore paper bobbin immediately presented a problem in the winder room where we were winding singles yarn. We needed a bobbin-holder pin that would hold the paper bobbin firmly enough to assure efficient winding and also accommodate the older type of small-bore wooden bobbin when it became necessary to switch from one to the other on the winders.

This was our solution: We were installing new lifter rods at the time, and the diameter of the old rods was just a few thousandths of an inch smaller than the inside diameter of the new paper bobbin. So our shop sawed the old rods into 4¾-in. lengths and turned down 1 in. of one end to fit into the bobbin-holder socket. The opposite end was turned down 1 in. to fit the wooden bobbins; the remainder of the piece serves as a pin for the paper bobbins. (K-3250) *William M. Rogers, American & Efird Mills, Mt. Holly, N. C.*

Tension Control Problems?

Dynamatic's Long Experience in Solving Industrial Windup and Unwind Problems will be Valuable to You

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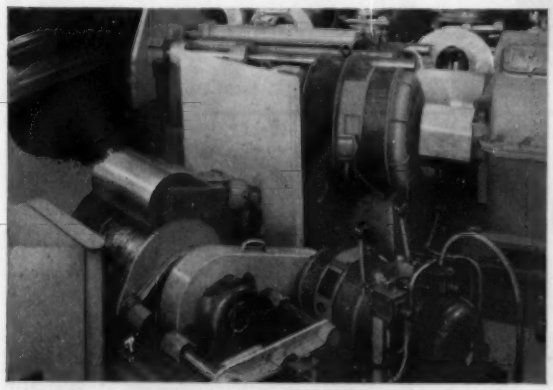
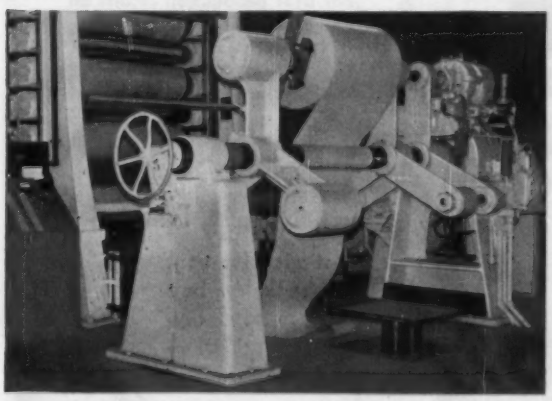


Metal slitter powered by Dynamatic Drives. Adjustable speed liquid cooled coupling used as main drive; Ajusto-Spede® Drives, with constant tension control, wind up the metal strips.



Completely Dynamatic driven paper super-calender. Adjustable speed liquid cooled couplings with Eddy-Current brakes drive the calender rolls and center rewinder. Dynamatic liquid cooled brake provides center unwind hold-back. Co-ordinated controls provide for wide-range adjustment of speed and tension.

Dynamatic Eddy-Current Drives with tension controls are used extensively in the fields of paper, rubber, textiles, ferrous and non-ferrous metals, plastics, and printing.

Combined with associated controls, Dynamatic Eddy-Current Drives provide automatic constant tension as the roll diameter changes on center rewinds and unwinds. Constant tension is maintained over a wide range of material delivery speeds without the use of dancer or follower rolls. Controls may be adjusted for tapered tension to increase or decrease tension automatically as the roll changes diameter.

Multi-range tension or tension adjustment over a wide range is easily accomplished at the operator's station to accommodate materials of various thicknesses or widths. Control modifications are available to provide for inertia compensation and other individual requirements. Dynamatic engineers are available for consultation on your problems.

Bulletins giving detailed information on Dynamatic Tension Control will be sent free at your request.

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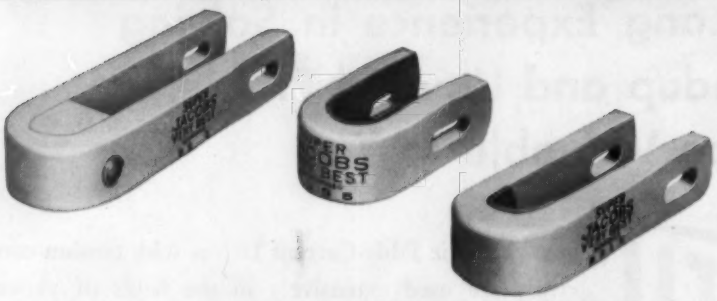
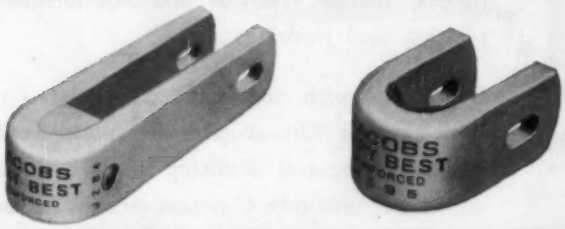
LUG STRAPS by JACOBS



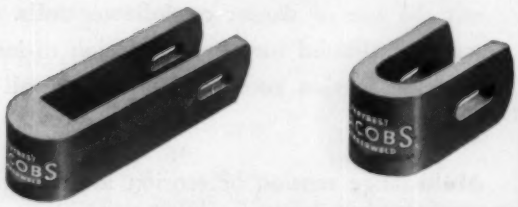
SUPER Reinforced "Verybest"

A new extra-heavy-duty lug strap, even more rugged and durable than the Reinforced "Verybest" lug straps which have been the standard of the industry for over 20 years for long, trouble-free service.



Reinforced "Verybest"

Has built-in reinforcements at sides, slots and heel to give extra wear on modern high-speed looms.



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Molded as one piece with no rivets. Gives absolutely uniform picking action. Resists oils, will not stretch, and not affected by humidity.

Reinforced Roller Cushion and Eclipse Best

For best production results on older or lighter looms.

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Made from finest available Hickory, permanently steam-bent to shape, and secured with heat-treated rivets.

Leather

Crafted from specially selected hairy oak, chrome or apron leather—plied, stitched and folded.

Note: All Jacobs Lugs can be supplied with or without plugs in any size — from stock.

JAKE JACOBS says — "Jacobs Lug Straps will pay off cost-wise for you. They're the Verybest you can buy. Performance proved — ask for samples!"

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EQUIPMENT AND SUPPLY NEWS:

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TEXTILE WORLD, A McGraw-Hill Publication, New York 36, N. Y. May, 1957

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NO REPEATS . . . Listed here for May are current bulletins reviewed by the editors of TEXTILE WORLD. To get the ones you need, circle the number on the Reader-Service card, as described on the preceding page.

TEXTILE MACHINERY & AUXILIARY EQUIPMENT

Interlock machines — Multifeed knitting machines for plain and patterned work, from 9 to 30 ins. in diameter up to 20 feeds, 24 needles per inch. Mellor Bromley & Co. Ltd. (F-1)

Rubber-thread-covering machine — Covers rubber threads with textile yarns for knitting and weaving. Carries 40 spindles, covers rubber threads uniformly at variable speeds. Muschamp Knitting Machinery Ltd. (F-2)

Rubber-knitting machine — Handles bare or covered rubber threads, made especially to knit girdle blanks, shaping them as wanted. Cylinders 11 to 16 ins., 8 feeds. Scott & Williams, Inc. (F-3)

Sweater-knitting machine — Interlock type, 30-in. cylinder, 30 feeds, 10 to 24 cuts. Scott & Williams, Inc. (F-4)

Warping creels—Overend creels for all types of yarns, handles all package styles. Variable-tension delivery. Edward J. McBride Co. (F-5)

Permanent-pleating machine—For various designs of pleats, particularly designed for thermoplastic synthetic-fiber fabrics. Karl Robofsky GmbH. (F-6)

Twister—Double-twisting action, produces 1.3 to 28 tpi., maximum speed 80 yds. per min. Verdol. (F-7)

Warp-knitting machine — With four guide bars, four beams. 84- to 170-in. widths. Liba Maschinenfabrik GmbH. (F-8)

Presetting machine—For hosiery of different types. Can be used for post-setting. Produces 800 doz. pairs per 8-hr. shift. Bellfour. (F-9)

Knitting machines—General line of circular machines for hosiery, underwear, outerwear plain and patterned. Scott & Williams, Inc. (F10)

SUPPLIES & CHEMICALS

Dyestuff analyses—Copper and manganese content of the direct dyestuffs made by Sandoz Chemical Works. Bulletin T-693. (F-11)

Filter-felt data—Data Sheet 18 describes various felts, their liquid-and gas-transmission properties, other information. American Felt Co. (F-12)

Formaldehyde solutions—Formalin dissolved in various alcohols for special purposes requiring low water content. Formal Bulletin. Celanese Corp. of America, Chemical Div. (F-13)

Laboratory glassware—Imported Jena glass, Haldenwanger porcelain, other glasses listed in catalog from Kern Laboratory Supply Co. (F-14)

Lint remover—Designed for humidifying systems; reduces tendency of lint to cling to aerators, cuts rust and slime formation. Industrial Products Co. (F-15)

Silicones—General cataog notes 115

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applications of silicones in several branches of industry. Cat. CDS-97. General Electric Co. (F-16)

Sizing system—Describes methods and materials for sizing of synthetics, spun yarns, and blends. Morningstar, Nicol, Inc. (F-17)

Teflon tubing—Rods, tubing, for further fabrication described in Bulletin T-300 from Halocarbon Div., Haveg Industries. (F-18)

Safety chart—How to handle caustic soda shown in wall-chart form. Dept. A. Solvay Process Div., Allied Chemical & Dye Corp. (F-19)

Natural latex—Centrifuged hevea latex is described and services obtainable from the company are listed in a booklet from Stein-Hall & Co., Inc. (F-20)

MAINTENANCE & ENGINEERING

Lubrication fittings—Relief-type fittings to speed up relubrication of bearings that require occasional oil change. Bulletin BU-61. Keystone Lubricating Co. (F-21)

Corrosion-resistant stacks—Glass fused to steel provides corrosion resistance in a line of smokestacks described in Bulletin SS-202 from A. O. Smith Corp., Process Equipment Div., (F-22)

Roof sealer—Resurfacing compound provides extra life to roofs, gutters. Booklet from Stonhard Co., Inc. (F-23)

Meters, valves, regulators—Complete line covered in 28-page catalog C-5000 Rev. 8 from Rockwell Mfg. Co. (F-24)

Push-button switches—Lighted units that can be used as straight push-button switches or can be locked in "on" position by turning. Data Sheet 110, Micro Switch Div., Minneapolis-Honeywell Regulator Co. (F-25)

Lubricating systems—One-shot systems, pumps, fittings listed in instruction sheet from Bijur Lubricating Corp. (F-26)

Radiant-heat systems—For resin curing, textile drying, described in folder from Radiant Heat Enterprises. F-27)

Roller chains—For conveyors, drives that require heavy-duty equipment. Book 2454 from Link-Belt Co. (F-28)

Electric motors—For all industrial purposes, 1/20 to 400 hp., direct, geared, a.c. and d.c. Application Guide 102 from Century Electric Co. (F-29)

Static eliminator — Radioisotope-ac-

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tivated units for eliminating static in many applications described in Bulletin L/A 2778. United States Radium Corp. (F-30)

Door operators—Powered units for operating factory doors, fire doors, etc. listed in two catalogs from Clark Door Co. (F-31)

Pressure filters—Water filters designed to handle from 145 to 920 gals. per min. Pub. 6322. Cochrane Corp. (F-32)

Industrial lighting—Fluorescent and incandescent units of many types described in RLM Specifications Book from RLM Standards Institute. (F-33)

Mixers — Shear-flow mixers with counter-rotating impellers. Portable units, ¾ to 5 hp. Gabb Special Products, Inc. (F-34)

Boiler-tube expander — Air-powered unit rolls boiler tubes under controlled conditions. Bulletin 56-1. Thomas C. Wilson, Inc. (F-35)

Textile motors—Enclosed motors designed especially for textile application described in Bulletin 1850. Louis Allis Co. (F-36)

Lintproof motors—For textile machines. General purpose motors, totally enclosed in 1- to 20-hp. sizes. Bulletin 2404. Reliance Electric & Engineering Co. (F-37)

Variable-speed drives—Belt-driven variable-sheave drives provide nearly three-to-one speed range. Designed for spinning frames. Bulletin G-561. Reeves Pulley Div., Reliance Electric & Engineering Co. (F-38)

Machine tools—Lathes, grinders, milling machines, other equipment listed in Cat. 5700 from South Bend Lathe. (F-39)

Panel controls—Complete listing of many types of switching equipment for master panels. Pub. EL-178. Cutler-Hammer, Inc. (F-40)

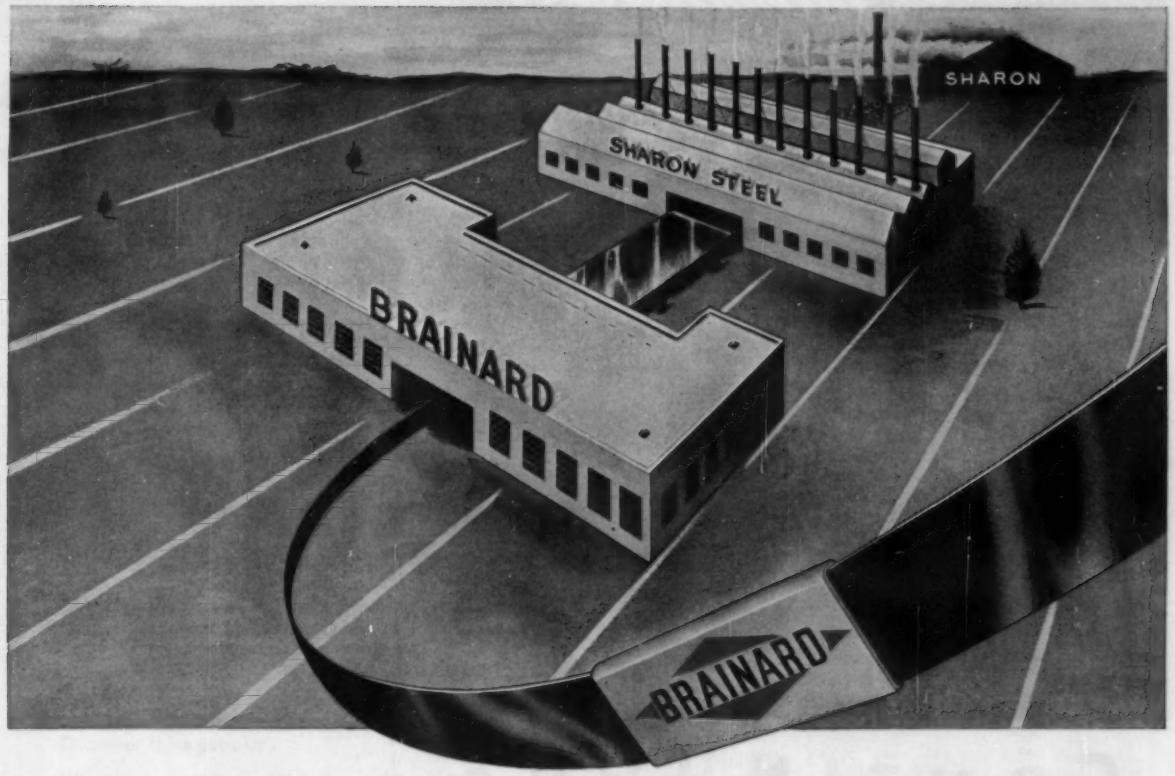
GENERAL

Hoists—Hand and powered models, related equipment listed in folder 163 from Chisholm-Moore Hoist Div., Columbus-McKinnon Chain Crop. (F-41)

Conversion factors—Wall chart lists many conversions from metric to English systems, hp. to watts, other items. Available from Precision Equipment Co. (F-42)

Laboratory chart — Reference chart compares many scales and tables, includes useful formulas, analytical

Another Plus...from Brainard



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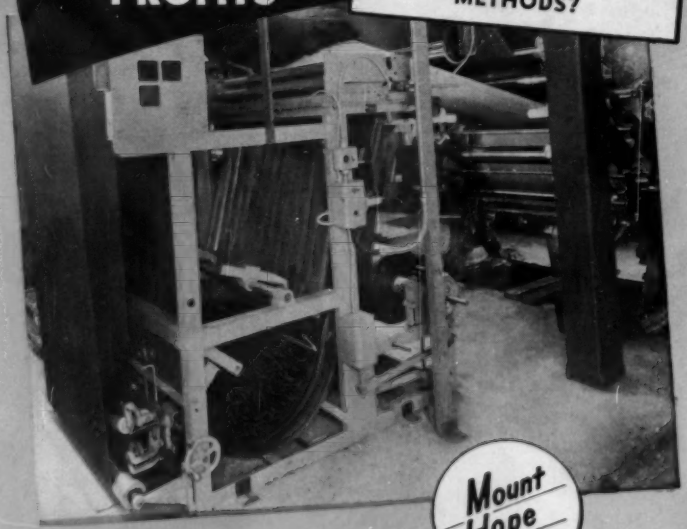

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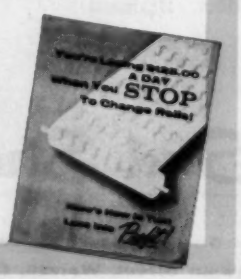


NEW LITERATURE Continued

methods. Arnold, Hoffman & Co., Inc. (F-43)

Textile packaging—Bagging unit for textile items described in folder from Tele-Sonic Packaging Corp. (F-44)

Industrial equipment—Office and factory items described in handbook from General Industrial Co. (F-45)

Packaging — Information on corrugated-paper boxes for all types of packaging. Hinde & Dauch. (F-46)

Hand trucks—Aluminum hand trucks and dock boards, capacities to 2,000 lbs. Voltz Bros., Inc. (F-47)

Fork trucks—Electric units designed for heavy duty in capacities to 8,000 lbs. described in Bulletins 530, 730, and 830. Mercury Mfg. Co. (F-48)

Yarn-number scale — Direct-reading scale, capacity 250 grains, checks yarns 4 to 1,000 count. Exact Weight Scale Co. (F-49)

Internal phone systems — Business phone systems for plants, large offices, described in brochure from Automatic Electric Sales Corp. (F-50)

Textile World

BOOK REVIEWS

NATIONAL STANDARDS IN A MODERN ECONOMY, edited by Dickson Reck; Harper & Bros., 49 E. 33rd St., New York 16, N. Y.; 372 pages, $5.

Standards link research with technology and make possible the continued production of goods to specifications. In this volume, 34 specialists review standards from the historical standpoint, on a national and international level, and then go on to describe standards as developed for several industries, including building, food, drugs, communications, farm products, and hospital supplies.

The extent to which standards determine the acceptability of merchandise bought by the Government for civilian and military use is well illustrated in two chapters.

Textile standards are discussed, as well as standards for labor perform-

Better dyeing

by **INTERNATIONAL SALT COMPANY, INC.**—America's largest producer of salt

"Sterling TNA-5" in Brine Form Gives Extra Convenience, Economy

Here's an important fact about Sterling TNA-5—the unique new dyeing reagent that produces better color yields at lower costs. You can use this superior product in *brine form*, for extra savings in both time and money. And TNA-5 Brine gives the same excellent results in neutral or alkaline dye baths as TNA-5 in dry form.

To make TNA-5 into brine, most of today's dyehouses are using the Sterling TNA-5 Dissolver. This simple unit automatically produces crystal-clear, fully saturated brine—which is then delivered under pressure to points of use throughout the plant. Here are some other reasons why the TNA-5 Dissolver is so popular:

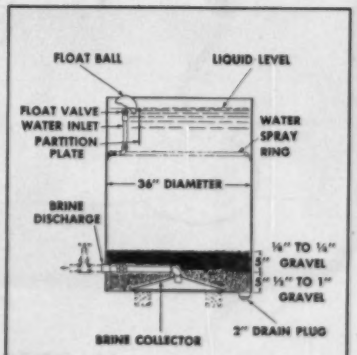
Dissolver uses bulk TNA-5 . . . In many areas, dyehouses have reported substantial dollar savings when TNA-5 is bought in bulk rather than 100-lb. bags. These savings will often pay the cost of a TNA-5 Dissolver. What's more, bulk TNA-5 can be unloaded from railroad cars or trucks quickly and conveniently.

Handling reduced. Because TNA-5 Brine is piped from the dissolver, the work of hauling dry TNA-5 from storage areas to the dye machines is eliminated—often at a considerable saving. Also, because of this direct-piping feature, the dissolver can be placed anywhere in the plant for the most efficient use of available space.

TNA-5 Brine assures level dyeing. Every gallon of 100° S. brine contains exactly 2.65 lbs. of TNA-5 in solution. Thus, each dye bath receives exactly the amount of TNA-5 required. And the TNA-5 Brine acts with equal effect on all parts of the material being dyed, maintaining level shades. There are no "salt streaks"—and redyeing due to salt is eliminated.

Sterling TNA-5 Dissolver is fully automatic . . . so it continuously replenishes the brine which has been drawn off to the dye machines. The only work involved is the turning of a valve. And with a direct pumping system, the TNA-5 Dissolver can supply a continuous high gallonage per hour.

Designed for your plant needs. You can get a Sterling TNA-5 Dissolver with just the right capacity for your dyeing needs . . . with just the right design to suit your plant layout. In dyehouses using large quantities of brine hourly, the Storage-Type TNA-5 Dissolver will prove highly efficient and economical. With this equipment, bulk TNA-5 is unloaded directly into the TNA-5 Storage-Type Dissolver. An International engineer will be glad to help you select the dissolver best suited to *your* plant.



The TNA-5 Dissolver (available in enameled steel, Monel metal, or plastic) takes little floor space. It's just 4 feet high, and, complete with valves and fittings, takes only 16 square feet of floor area. In most dyehouses, it quickly pays for itself—in savings of time and money.

INTERNATIONAL SERVES ALL OF TODAY'S TEXTILE NEEDS

Through skilled and experienced technicians, International can help dyehouses and textile mills get greater efficiency and economy in their dyeing processes. In addition to Sterling TNA-5, International produces high-quality Sterling Evaporated and Sterling Rock Salt in all types and sizes. We also make automatic dissolvers in metal or plastic for these products. So we can recommend the type and size of salt, and the dissolving equipment, most perfectly suited to a plant's needs.

If you'd like the assistance of an International technician on any problem concerning salt, salt-dissolving, or brine—or further information on Sterling TNA-5—just contact your nearest International sales office. No cost or obligation.

International Salt Co., Scranton, Penna.

Sales Offices: Atlanta, Ga.; Chicago, Ill.; New Orleans, La.; Baltimore, Md.; Boston, Mass.; Detroit, Mich.; St. Louis, Mo.; Newark, N. J.; Buffalo, N. Y.; New York, N. Y.; Cincinnati, O.; Cleveland, O.; Philadelphia, Pa.; Pittsburgh, Pa. and Richmond, Va.

TNA-5 IS USED IN MORE AND MORE DYEHOUSES. HERE'S WHY:

TNA-5 is an efficient, economical replacement for Glauber's salt (anhydrous sodium sulphate). It replaces Glauber's Salt on a pound-for-pound basis in a neutral or alkaline dye bath—yet it costs 50% to 65% less.

TNA-5 increases color yield 5% to 10%. Free of calcium and other impurities, TNA-5 forces more dyestuff on and into the material being dyed. Less dyestuff remains in suspension to be washed down the drain. The result is more level shades, and a soft, smooth finish.

TNA-5 is readily soluble in hot or cold water. Yet its exhaustion rate is about the same as for Glauber's Salt.

TNA-5 is versatile. It can be used in a natural or alkaline dye bath for dyeing cotton, rayon, or any blend of these fibers with wool. And it is equally effective in staple, yarn, or piece-goods dyeing.

TNA-5 saves on expensive dyestuffs. TNA-5 forces a greater percentage of dyestuff onto the material being dyed. For the many dye plants using TNA-5, this means considerable savings, because they get 5 to 10 per cent more out of their dyestuffs.

STERLING TNA-5

PRODUCT OF INTERNATIONAL SALT CO., INC.

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Whether you're running cottons, wools, synthetics or blends, you'll find that National Travelers can consistently deliver more pounds of first class yarn . . . at higher spindle speeds . . . with fewer ends down. In mill after mill — year after year — the precision balance and quality-controlled uniformity of National-Sterling Travelers have paid off in top performance. A trial run on *your* spindles can quickly prove the point.

Act now . . . let a National-Sterling Engineer help you select the right traveler for your particular spinning or twisting operation. Write, wire or phone National Ring Traveler Company and Sterling Division, 354 Pine Street, Pawtucket, R. I. or Southern Office and Warehouse: P. O. Box 112, Gaffney, S. C.

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ance, compensation, pensions, wages. The effect of the Sherman Act is noted to be inimical to standards if antitrust angles develop from standardization.

WORK, WORKERS, AND WORK MEASUREMENT, by Adam Abruzzi; Columbia University Press; 318 pages, $7.50.

Dr. Abruzzi is no stranger to the field of timestudies, worker productivity, rate setting, and other phases of industrial engineering.

His theories are based on the fact that workers are people, with problems outside their work that preclude a cut-and-dried analysis and evaluation of their productivity on the job. The worker also looks upon his work as a game between him and the boss.

The subjective element in worker evaluation must therefore not be overlooked. The basic component of job evaluation can be standardized, but it must be combined with an allowance for the individual's personal vagaries and skills if it is to be fair and successful.

The problems presented by the automatic factory are considered, and suggestions for the division of labor into mechanical and skilled classifications for such operations are set forth as logical developments.

INDUSTRIAL ENGINEERING HANDBOOK, Harold B. Maynard, Editor-in-Chief; McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 36, N. Y.; 1,504 pages, $17.50.

The field of industrial engineering has been covered in a broad and authoritative way in this compilation of principles, data, methods, and procedures.

Topics such as industrial engineering function, work measurement, predetermined elemental time standards, wage payments, plant facilities, and control procedure are discussed.

There is emphasis on the human relations of industrial engineering.

The book includes such subjects as well-established time-and-motion studies and newer developments in linear programing and automation.

The practical aspects of industrial engineering are backed up by information on related subjects such as quality control and tool design. The book will appeal both to the engineer and the manufacturer or business manager.

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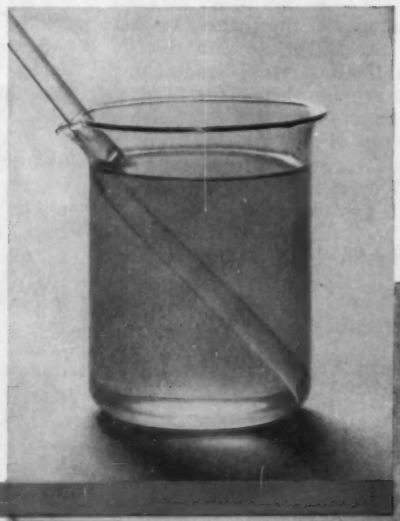
Opalescent Solutions

Baumé	Wt. Ratio (Na_2O to SiO_2)
38° Pearl	1:3.25
40° Regular	1:3.25
41° Acme	1:3.25
42.5° Ajax	1:3.25
47° Ideal	1:2.84
52°	1:2.40
60°	1:2.00

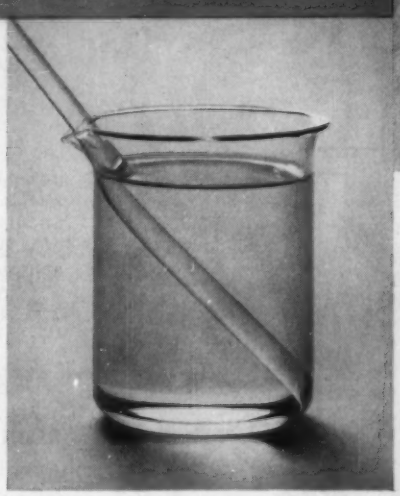
And other ranges of Baumés



Clear Solutions

Baumé	Wt. Ratio (Na_2O to SiO_2)
38° Crown	1:3.25
38° Gem	1:2.54
40° Peak	1:3.22
41° Water White	1:3.25
42° Silk	1:2.54
42.5° Water White	1:3.25
44° Perox	1:1.80
52° Zenith	1:2.40

And other ranges of Baumés



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CONTINUED FROM PAGE 107

straight on the beam. Made by Behr-Manning Co., the tape used has a tensile strength of 45 lbs. per inch of width and holds the yarns securely without leaving an adhesive deposit when removed.

Yarn Is Sandwiched Between Tapes

When a loom beam is filled, a lease string is inserted in the warp, dividing it into two sheets. A strip of tape is placed on the yarn approximately one yard behind the lease string. This tape is placed on the yarn in front of the comb. After the tape passes between the front rolls of the slasher, another strip is placed on the yarn directly beneath the first strip, sandwiching the yarn between them.

Two more strips of tape are placed on the top of the yarn in front of the comb. These strips of tape are placed about 2 ins. apart and approximately a yard behind the tape previously applied. When this tape is run onto the loom beam, the yarn is cut between the two strips.

Tape Has Several Advantages

Several short pieces of tape at right angles to the strip left on the end of the yarn on the beam holds the cut end securely. The other end of the warp, held in sheet form by the tape, is easily started straight on an empty loom beam.

The use of this pressure-sensitive tape has been found to have several advantages:

1. It is not necessary to wet it before use, as must be done with ordinary gummed tape.
2. The warp ends are held securely and in a straight sheet for the tying-in operation.
3. A minimum of yarn is wasted at the slasher and at the tying-in machine.
4. Time and labor are saved in applying and removing the tape.
5. Holding properties of the tape are not affected by long exposure to the humid conditions of the weave room.

Scottdale Mills has found that pressure-sensitive tape fits in with its diversified slashing and tying-in operations. The tape is used satisfactorily on all types of yarn and different sizes of beams for both stationary and portable tying-in machines.

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RESIN FINISHES

CONTINUED FROM PAGE 147

The goods are then cured at 320° F. for 2 to 2½ mins. and put through an open soaper to remove traces of unpolymerized resin. The calendering effect is largely retained because the curing operation sets the fabric-resin combination durably. For some requirements, a second run on a seven-roll calender is given this type of finish to produce extra luster.

Friction Finishes Double-Checked

Prints routed for friction calendering are brought off the treating tenter at 14 to 15% moisture. The high glaze produced by friction-calendering a resin finish is durable to careful washing if properly done, and the moisture content of the goods at the time of calendering is extremely important.

So Pontiac rechecks each roll with a portable Hart moisture meter before it is calendered to make sure that the

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GOOD NEWS for the

CIRCULAR KNITTING INDUSTRY!

LONG-LIVED ALSIMAG® Finger Tubes

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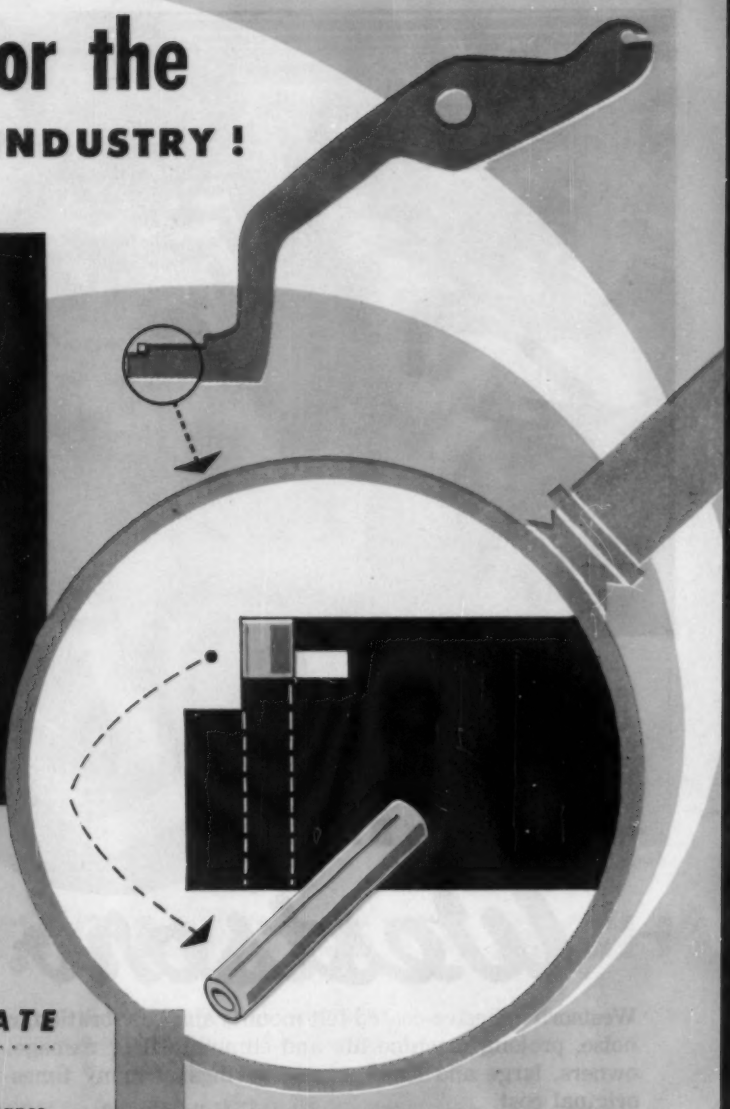

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AlSiMag Finger Tubes have amazing wear resistance, even with the most abrasive yarns. Extremely hard. Homogeneous . . . have no point of sudden failure. Completely uniform . . . from piece to piece and from lot to lot. Close dimensional tolerances. Easily adjusted to any depth in Feustel Fingers. Firmly held but easily and quickly removed for cleaning. Industry-approved AlSiMag 192 material. Also available in conductive AlSiMag 193 material, which aids in the control of static electricity.

AlSiMag Part GE-34435
(Shown approx. 8 times actual size)

AlSiMag Finger Tubes for various sizes and makes of Fingers available. Write for details.

Order AlSiMag Finger Tubes for Feustel Fingers from Ernest A. Feustel, Inc., 842 Winston Street, Greensboro, N. Car., or direct from American Lava Corp., Chattanooga, Tenn.

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necessary moisture is there. Calender temperatures on the frictioning roll are checked at 320 to 330° F. by means of a surface pyrometer, and the goods are put through at 30-tons pressure. The goods are then cured at 320° F.

Pontiac puts a good proportion of its resin-finished fabrics through a Schreiner calender and has found that with proper moisture control the finish is much better and more lasting.

Control Helps Production

Improved quality and uniformity of finish aren't the only gains from moisture-controlled drying. There is a very definite production gain as well as a reduction in steam costs.

The operator does not have to be concerned with making sure the goods are dry by manual checking—a method that generally included a generous safety factor in favor of overdrying.

And evaporating 4 to 5% less water out of several millions of yards of cloth per month means a definite decrease in steam consumption.

HAND-KNITTING YARNS

CONTINUED FROM PAGE 120

the yarn on a cardboard tube. These winders have six spindles, and one operator looks after three winders. The cones are placed in a creel below the spindles.

The length of yarn to produce a 1-oz. pull skein is calculated from the yarn size. This length is transferred to a predetermined stop counter, which stops the machine when the required length has been wound.

Pull Skeins Handled on Trays

Trucks that hold up to 20 cardboard trays are pushed along the front of the winding machines. The pull skeins are drawn from the spindles and packed neatly in the trays as they are drawn out, one by one, from the shelves of the truck.

The trucks containing the trays are moved to the packaging section, where labels are placed around the pull skeins. Pneumatic devices are used to place labels around 1-oz. skeins.

The labels, usually printed with the color and dye lot of the yarn, are threaded on a hollow tube. An umbrella device, working inside the tube, compresses the pull skein while the label is pulled over the skein.

Completed skeins are withdrawn from the tube, and packed directly into boxes. These boxes are then moved by conveyor to a final inspector, who also places lids on the boxes.

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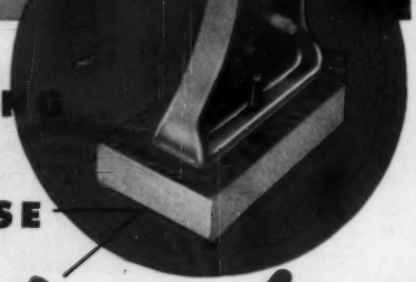
REQUIRES
A GOOD BASE



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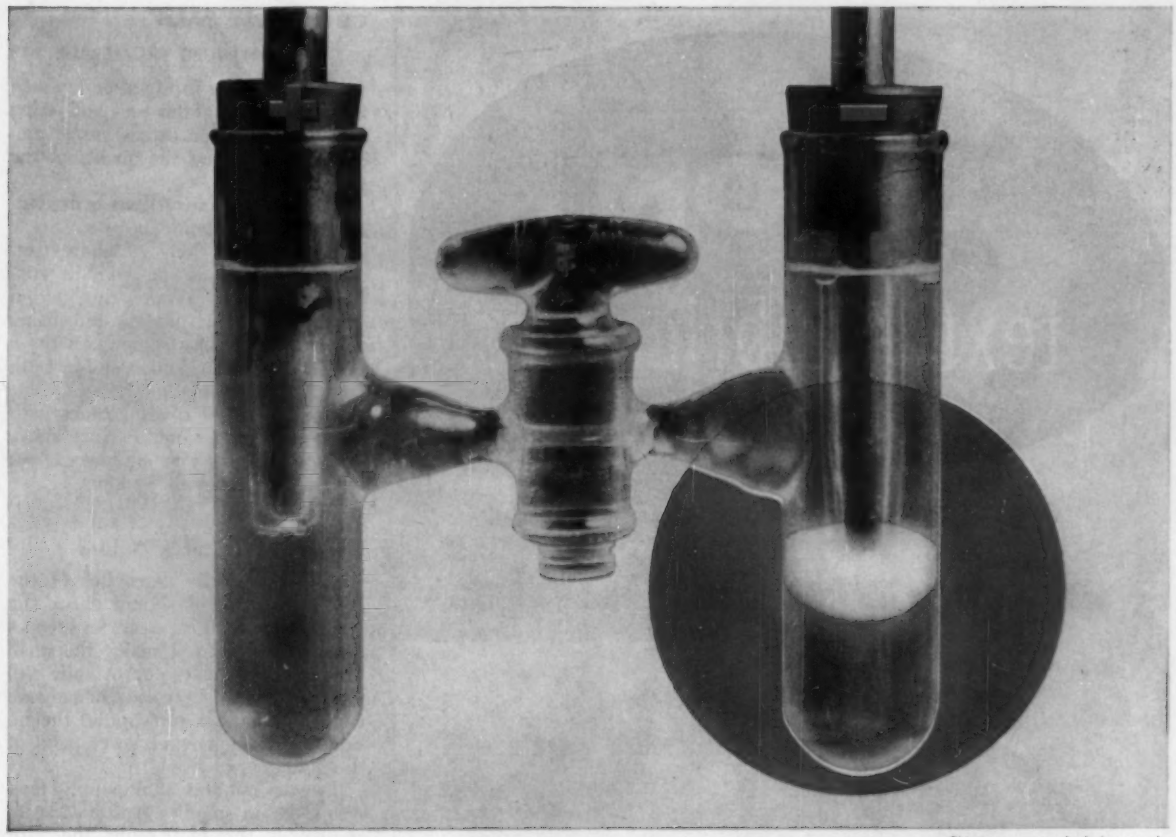

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An entirely new concept is shown in the above electrophoresis cell. The cloudy mass about the cathode is National's CATO®—the first cationic starch for textiles.

CATO carries a cationic charge as an integral part of its polymeric structure. The result? A strong electrochemical affinity for negatively charged fibers—as proved by CATO's migration under applied potential to the cathode of the electrophoresis cell.

CATO shows unusual promise as a warp size for cotton, wool, Fiberglas, viscose and other synthetics. Preliminary tests strongly indicate less shedding, greater tensile strength and improved weaving. Moreover, CATO may well offer other striking advantages in printing and finishing.

Sound interesting? We'll be glad to supply trial quantities and have one of our textile specialists demonstrate in your plant.

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CARBIDE AND CARBON CHEMICALS

COTTON PLY YARN

CONTINUED FROM PAGE 149

The result is a ruptured end, which involves stopping the reel and tying a knot. This action causes loss of production and lowers the quality of the product.

To prevent grooves from being cut, a longer guide should be used. Some guides, whether long or short, permit the end to escape from its confining element. When this action occurs, yarn either piles up and makes a faulty skein or tangles with a neighboring skein, which causes both skeins to become a total loss.

The remedy is to use guides with tails that project some distance above the guide. These tails afford excellent protection against flying ends.

Use Knife To Check Guides

The foreman or supervisor of the reeling department should check the guides, even the long ones, for grooves from time to time. Usually, the small blade of an ordinary pocket knife will serve to detect the presence of a groove when the blade is run around the inside of the upper and lower parts of the guide.

Twister bobbins that supply reels should be on spindles that are free to revolve as the swift pulls the yarn from the bobbin. Some braking action is required to stop the bobbins from overrunning when the reel is stopped. Otherwise, the yarn may lash from one bobbin against another and cause entanglements and breakage.

Braking is done on some types of reels by a cotton band threaded in and out of the spindles along a groove in the spindles. The band touches first one side of one spindle and then the other side of the adjacent spindle. One end of the band is fastened to the end of the reel, and the other end is either manually attached to the arm of the reel or a known weight is secured to it.

It is important that the tension on this band be just enough to prevent the spindles from overrunning. Should the band be too tight, excess friction on the spindles may make it difficult for the reel to pull the yarn from the bobbins.

If fine yarns are being run, some of the ends may break; whereas if medium yarns are being run, the excessive friction can cause the yarn to hug the reels so tightly that the reel operator finds it difficult to collapse the reel for doffing. In either case, trouble occurs and waste or loss of production follow.

Yarn from these creels should run to the reel swifts over a rod. To

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In recent months, our bolster manufacturing capacity has been increased substantially to better meet your requirements. And as always, SKF works closely with spindle manufacturers in servicing spindles after installation.

Yes, you get full value for your dollar when you

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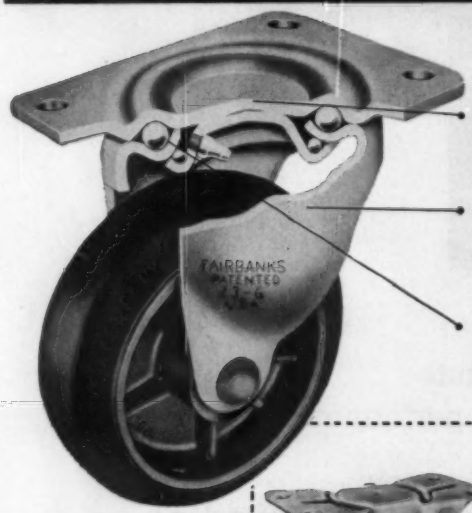
IN CASTER DESIGN
FAIRBANKS
"LOCKWELD" Swivel Casters — Without King-Pin!



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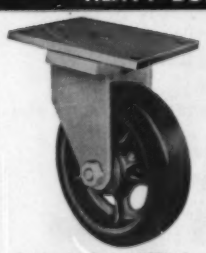
Fairbanks Series "23" double ball race swivel casters, for medium duty, sizes 3" to 8".

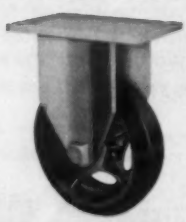
Fairbanks Series "33" rigid casters, match Series "23" casters in height, sizes 3" to 8".

Fairbanks Series "21" single ball race swivel casters, for regular duty, sizes 2" to 6". Matching rigid Series "31" casters available.

HEAVY DUTY STEEL CASTERS



Fairbanks Series "27" double race swivel casters, for heavy duty, sizes 6", 8" and 10".



Fairbanks Series "37" rigid casters match the Series "27" casters in height, sizes 6", 8" and 10"

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create necessary friction, two dead-weight metal disks are placed on a flat surface, one on top of the other, with the end of yarn between them. The weight of the tension disks varies according to the different yarn sizes and plies. Sometimes it is possible to use one weight of tension disk for several yarns that are not too far apart in number and ply.

Another type of tension holds the yarn between two loose friction disks that can be closed up as tightly as desired. One mill, in checking the performance of both types of tension, found that the dead-weight disk gives a more reliable tension, since the weight applied is definitely known. Friction applied by the adjustable tension varies.

Both types, however, lose some of their effectiveness if a piece of fly waste or some gummy particle of dirt is present. Waste or dirt must be cleaned off before the tension is applied.

MERCERIZING OPERATIONS

CONTINUED FROM PAGE 133

on poles in a single-pass Proctor & Schwartz skein dryer.

How Ball Warps Are Run

Southern's largest production is in plied yarns that are mercerized from ball warps.

This system handles 48 warps at a time, consisting of 378 ends per warp. A preliminary wetting out in hot water is followed by a cold-water bath and immersion in mercerizing caustic. Exposure to the full-strength caustic will average about 1 min. Then the yarn is washed in hot water, neutralized in weak sulfuric acid, and rinsed free of salts and excess acid in succeeding wash boxes.

The mass of yarn is split into the original units from each ball warp as it leaves the final squeeze rolls of the mercerizer. A hot-air dryer removes the remaining moisture, and the warps are coiled into cans.

Final operations include quilling, coning, and packaging the yarn to customers' requirements.

An efficient operation has been developed at the new plant by laying out processing so that the yarn travels in a U-shaped path with a minimum of side tracking. By planning carefully, the change-over from the old plant to the new was done with a minimum of lost production.

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Cottons resist wear or wrinkles even more with RHONITE R-1 *and* RHOPLEX

Everybody knows that the best things come in pairs! So our wise little owls are now teaming up RHOPLEX acrylic resin with RHONITE R-1 for better-than-ever cottons or cotton blends. As the fabric requires, RHOPLEX acrylic resin can be added to produce

- ***better* wrinkle resistance with *equal* fiber strength**
- **or, *equal* wrinkle resistance with *superior* fiber strength.**

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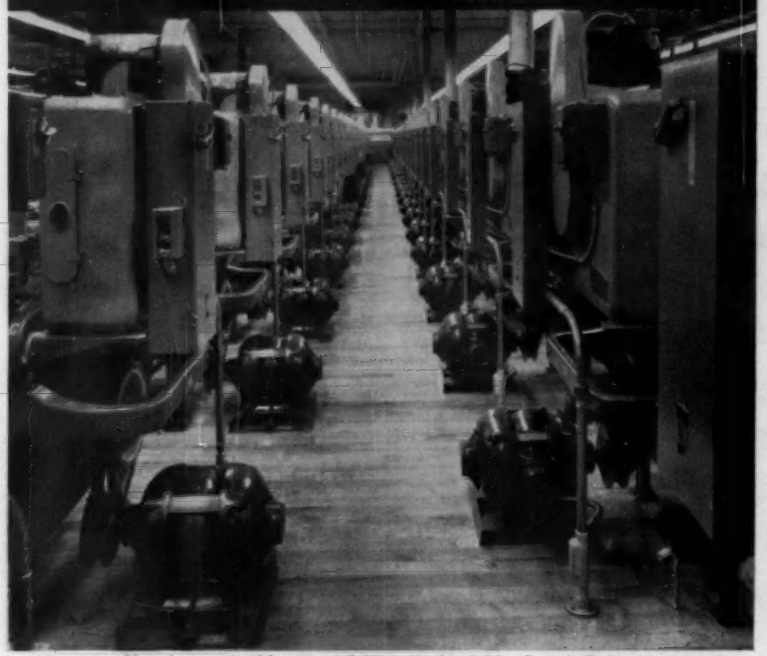
For SPINNING FRAME DRIVES



Showing a double row of Wood's Variable Speed Drives mounted on Wood's "Quick-Slide" Motor Bases, installed in a well-known textile mill.

...quick, accurate speed control with

Wood's VARIABLE SPEED DRIVE

Wood's offers the simplest variable speed sheave on the market today! So easy to change speeds. Simply turn the single adjusting screw from either side to change pitch diameter. With the speed chart furnished you can adjust the sheave to the desired speed without trial and error. Simplified design provides positive clamping of the two adjustable flanges—eliminates fretting corrosion. Single wide range belt gives maximum HP efficiency. Does away with the problem of maintaining matched belts and matched grooves. (Maintenance costs go down because no periodic lubrication is necessary for the drive.)

Naturally, you are interested in lowering costs . . . so, ask for complete information on the most talked about drive in the Spin-Weave Industry—write for Bulletin #1100 and the name of your nearest Wood's Distributor. No obligation.

HIGHER EFFICIENCY
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ADJUSTABLE ON EITHER SIDE
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OPENER CLEANER

CONTINUED FROM PAGE 124

No significant differences were observed for neps, fiber strength, upper-quartile length, mean length, fiber-length variability, yarn strength, and yarn elongation.

Integrated Line Is Tested

Next, an integrated cleaning line, consisting of a hopper, the opener-cleaner, another hopper, a breaker picker, and the carding cleaner, was tested, and the results were compared with data obtained from the control line.

The cleaning efficiency of 81.5% obtained by the integrated system was about 56% higher than the cleaning achieved by the control line. There was no damage to the cotton except for an unfavorable increase in neps. Lint losses were nearly 40% lower in the integrated system than in the control line, and trash removal was high. Total card waste was significantly lower, but this was to be expected in view of the cleaner cotton delivered to the card. Card strips were also lower, but not significantly so.

The slight but significant loss in fiber strength is difficult to explain, particularly in the light of a significant increase in yarn strength. No significant differences were observed for upper-quartile length, mean length, fiber-length variability, yarn elongation, and yarn uniformity.

YARN QUALITY

CONTINUED FROM PAGE 128

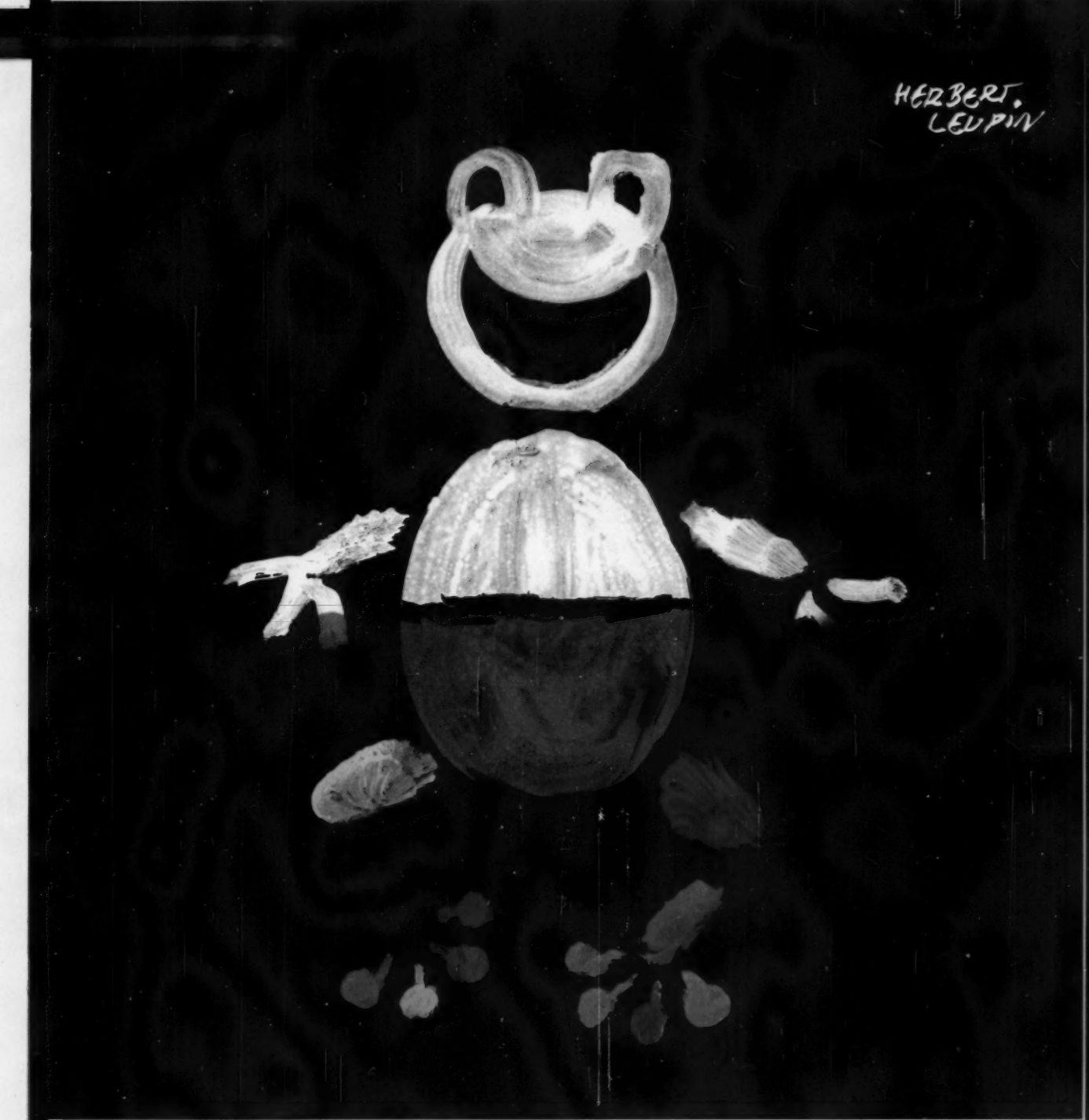
varied as to run-out before the eccentric sleeves were mounted, the average amount being 0.003 in. Sleeves were machined on a lathe to produce 0.003, 0.006, 0.009, 0.012, 0.015, 0.018, 0.021, 0.025 and 0.030 in. of run-out.

The roll produced slightly different amounts of run-out at the fluted sections within each set of eccentric sleeves. This difference was probably due to the original eccentricity of the fluted sections relative to the bearing sections of the roll itself.

Correlations Are Discovered

The yarn spun at each doff was tested for uniformity with the Brush analyzer at a unit length of ½ in. and sensitive length of 10 ft.; tests also were made for skein strength and single-end strength. Correlations existed between front-bottom-roll run-out and uniformity and strength of yarn.

As greater amounts of run-out were introduced in the roll, yarn quality



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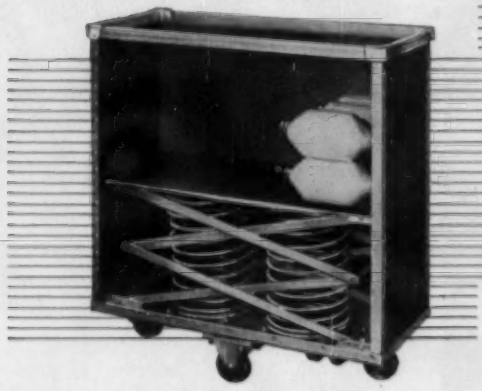
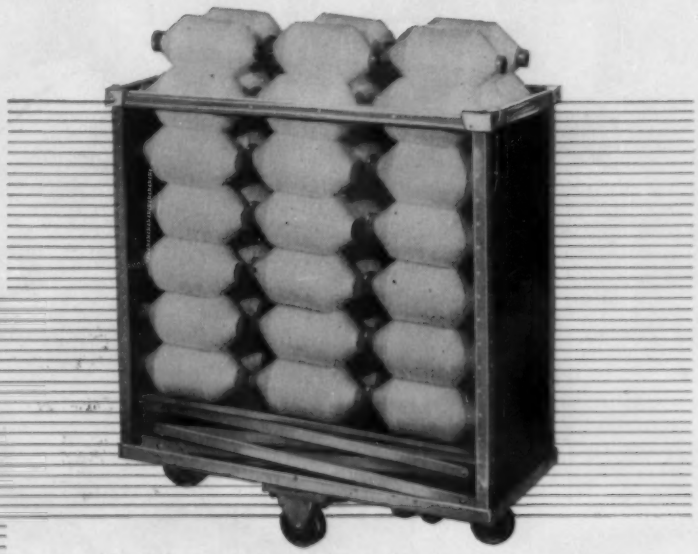
WITH THE FLOATING BOTTOM THAT STAYS LEVEL REGARDLESS OF LOAD DISTRIBUTION

Spaulding's specially developed linkage mechanism keeps floating bottom level at all times, prevents tipping or jamming when load is unevenly distributed.





Heavy loads keep bottom fully depressed. As load is gradually removed floating bottom rises to keep material within easy reach. Sides cannot warp or buckle to hinder smooth action of bottom.

SPAULDING PRODUCTS ARE:

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LIGHTWEIGHT — Easy to move about and handle.

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Made with our own Vulcanized Fibre, Spaulding's Floating Bottom Textile Trucks and Boxes won't snag or damage yarn through years of time saving, trouble-free service. Contact the Spaulding Office nearest you for full information on these remarkable new aids to better textile production.

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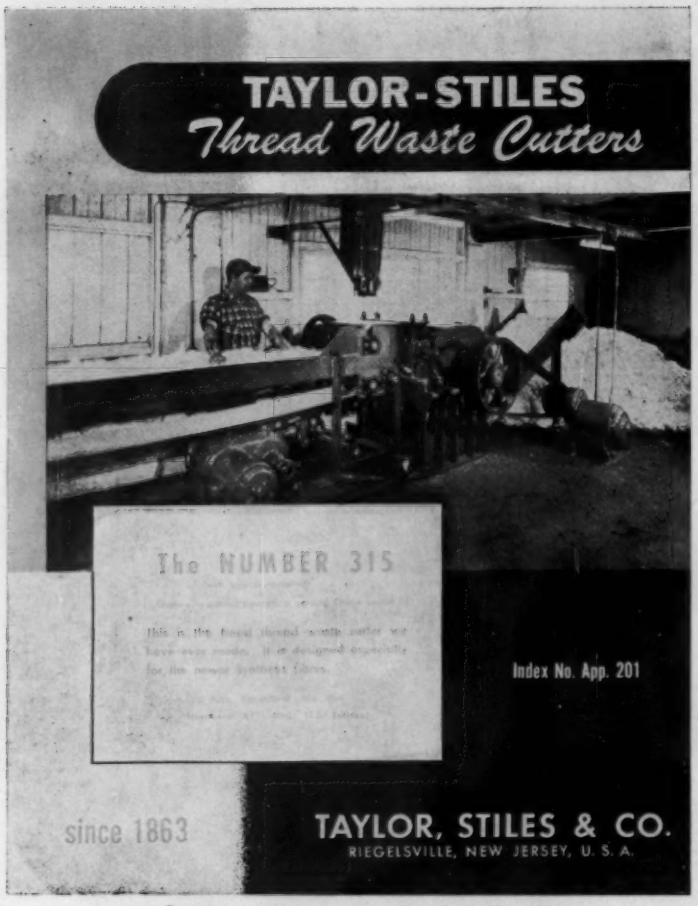

THIS FREE FOLDER

has the answers to your Thread Waste Cutting Problem!

This four-page folder fully describes and illustrates Taylor-Stiles Thread Waste Cutters for wool, cotton and synthetic yarns. Taylor-Stiles machines cut nylon and other synthetics without fusing. Cut yarn passes freely through machine without jamming.

Lengths are cut from 1 to 24 inches. Table gives capacities in cubic feet per minute.

Write for your copy of Folder 201 TODAY.

TAYLOR, STILES & COMPANY

15 BRIDGE STREET **RIEGELSVILLE, NEW JERSEY**

deteriorated. For the particular cotton, spinning system, and draft used in these tests, the point at which uniformity and strength of yarn began to decrease rapidly was about 0.007 in.

Bottom Rolls Are Tested

Later tests were designed to determine the effects of bottom-steel-roll run-out on yarn quality over a range of drafts and to investigate the influences of run-outs at the front, middle, and back bottom rolls on yarn properties.

These experiments, using 1 1/32-in. Middling California cotton, were made on a Saco-Lowell Duo-Roth spinning frame. A supply of 1.00-hk. roving was prepared by processing cotton from two laps into roving under identical conditions of carding, drawing, and roving.

Each bottom roll in the spinning frame was fitted with eccentric sleeves. The run-out at each fluted section was measured as previously described. Four yarn numbers, 18s, 25s, 32s, and 40s, were spun from the 1.00-hk. roving under three different conditions.

Uniformity Is Measured

The yarn spun under each test condition was tested for uniformity, skein strength, and single-end strength. Uniformity measurements were made on a Brush uniformity analyzer. Measurements made at the 1-ft. sensitive length best showed the variations being studied; so that length was used for all test yarns.

The effects of bottom-front-roll run-out on the skein strength of 18s, 25s, 32s, and 40s yarns show the same trend in all four yarn numbers—a decrease in strength as front-roll run-out increases.

For single-end strength, the effects of front-bottom-roll run-out were more scattered. However, the trends of reduced strength with increased roll run-out are statistically significant. Front-bottom-roll run-out increased and yarn uniformity deteriorated.

Quality Is Not Affected

Varying the amount of run-out in the bottom middle roll was found to have little or no effect on yarn quality. Practically no effects on yarn quality were found for the four yarns when bottom-back-roll run-out was increased to 0.026 in.

The fact that little or no drafting takes place behind the back roll probably accounts for the lack of effect of back-roll run-out. As the front-zone draft increased from 13 to 30, the deterioration in yarn quality took place more rapidly.

(*Advertisement*)

Stantex® Oils Find Many Uses in Throwing

BY R. A. JAEGERS
SALES, SUNBURY, PA.

There is a STANTEX oil to meet practically every requirement a throwster has. For example, STANTEX 1060 is an outstanding all-purpose coning oil for nylon yarns providing yarn relaxation, easily controlled oil pickup, low yarn running tensions, good cone buildup, and high knitting efficiency. In addition, it preserves the whiteness of yarns and is easily scoured out in dyeing.

STANTEX 1063 is an oil with comparable properties and is particularly recommended for Ban-Lon* yarn.

One of our most versatile oils is STANTEX 1032 which is used on 40 and 50 denier pre-shrunk seamless welt yarns with excellent results. If your knitters are having trouble with crow's feet and improper tension in the welt, try STANTEX 1032.

When applied to dyed acetate and nylon yarn at coning, STANTEX 1032 provides better color value, as well as lubricity and anti-static qualities.

STANTEX 814 and STANTEX 1243 are anti-graphite oils for the lace trade which have done a superior job for several years. STANTEX 814 is best suited for coning large packages.

STANTEX N.S.P. 125 and STANTEX N.S.P. 127 have been producing excellent results on hosiery yarns for many years and can be considered the pioneer oils in the nylon throwing trade for oiling over PM-90 Size.

*T. M., J. Bancroft & Sons

Standardgrams

Standard Has What It Takes To Assist the Dyer

Standard has many wet-processing chemicals and auxiliaries for the dyer. This report, however, will be restricted to those products used primarily by dyers of knitted fabrics. Probably one of the biggest developments in the tricot industry in years has been the advent of the pressure dye machine. We have progressed also by developing several new products to be used in this process.

STANDAPON 95 BM is an easily soluble, nonionic detergent with low-foaming characteristics. It can be used in the single bath method, as well as in a separate scour. STANTEX KBM is an anionic dyeing assistant, wetting, dispersing and leveling agent which can be used in the single or two-bath method.

STANTONE X-6 is a non-yellowing substantive softener and anti-static agent having minimum effect on light fastness and shade of dyed fabrics.

STANDAFIN® R-35 is a thermoplastic resin dispersion for building hand and body and is recommended for both hosiery and tricot finishers.

Several STANTEX oils serve double duty being used by both throwsters and dyers. STANTEX 1060 is applied in coning to dyed Fluflon** and Superloft** yarns and this greatly improves the knitting qualities of the yarn.

STANTEX 1032 is applied to dyed acetate and nylon yarns in the last rinse after dyeing providing an excellent finish for the yarn. This is especially the case in decorative yarns where the finish retards the pickup of needle and machine oils in knitting, thus making the scouring operation much easier.

Our technical representative will be glad to discuss with you these and other Standard products at your convenience.

**Under license, Universal Winding Co.

A Proven Product for Tricot Knitter

The application of STANTEX 814 to tricot yarns in warping has the following advantages:

1. A better, more uniform beam
2. Edges of yarn on beam are straighter
3. Control of static
4. Reduces needle and guide wear
5. Facilitates removal of soil and dirt in scouring.

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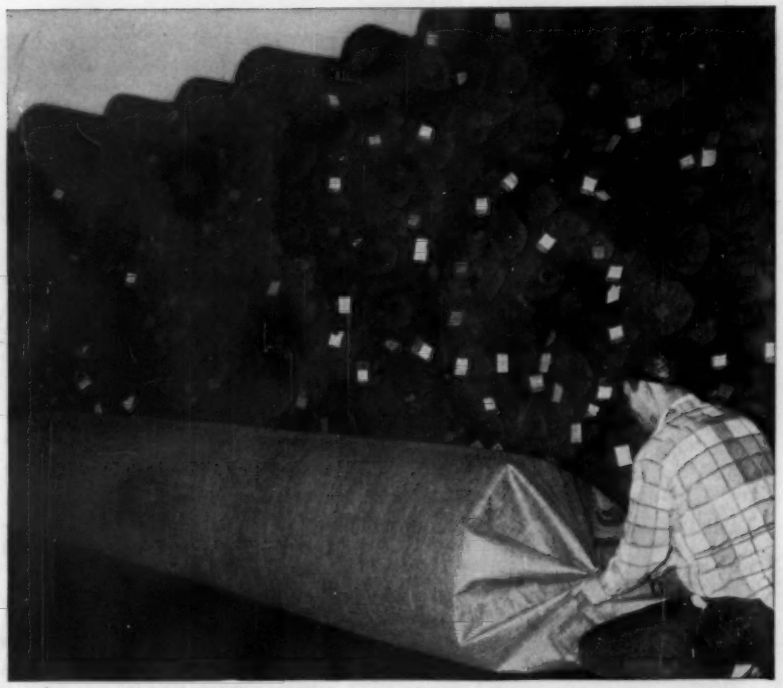

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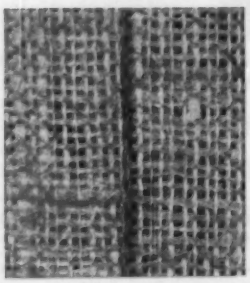

The strong, flat cemented seam is the key to complete protection.

Bemis ROL-RAP Laminated Carpet Covers have cemented *seams*, so there are no needle holes to admit damaging dirt and water. The seams are flat . . . and they are much stronger (by tensile strength test) than conventional seams.

The cost? No more than ordinary covers.

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DYE KNITTED FABRICS

CONTINUED FROM PAGE 139

Another Carter innovation is to circulate the dye liquor in the beck, drawing it from in front of the baffle board and delivering it to a spray pipe that extends across the front of the beck. Dye is very evenly distributed by this method, which is of great help at the beginning of the dyeing.

Office Is Control Center

The dyer's office contains the recording and controlling instruments for all dyebecks and the four kiers. An inter-com system connects the dyer with each beck or kier operator and the color mixer.

The color shop is located over the dyer's office. Dye formulas are mixed in portable tubs and then discharged into stainless-steel pipes that lead to the various becks and kiers. This method of handling color and chemicals eliminates much handling and carrying of boiling tubs of color. One man serves the entire operation, helped here also by the inter-com system.

Each beck has two pipes to receive dye liquors; one discharges to the beck, the other to waste. When a line is to be flushed out, the operator diverts unwanted liquors to waste at the direction of the color mixer.

Carter uses direct, after-treated, naphthol, and vat colors for its range of dyeings, selecting from the group best suited for the shade at hand.

Except for very dark shades, most dyeing is preceded by a half-bleach in the beck. Working on a ratio of 1½ gals. of water per lb. of goods, the bath is made up with:

4 oz. detergent
4½ lbs. caustic soda
2½ lbs. sodium silicate
2 lbs. peroxide (50%)
To 150 gals.

Steam is turned on and the bath brought to the boil and maintained for about 1 hr.; then the bath is gradually cooled by dropping a portion of the bath and refilling with cold water. Finally, a fresh rinse is given to prepare for dyeing.

Direct Colors Used

Direct colors are used for 60 to 70% of Carter's dyed work. For these colors, dyeing is started at 100° F. and color is added slowly over a 30-min. period.

Then the temperature is raised in 45 mins. to 200° F. and maintained for 15 to 30 mins. Then the steam is turned off and the bath let cool.

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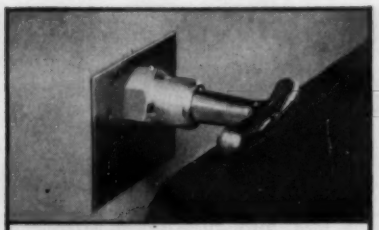

Emergency cutout switch breaks all electrical contacts in system.

Fuel system designed to eliminate syphoning.

Generator and starting motor are totally enclosed.

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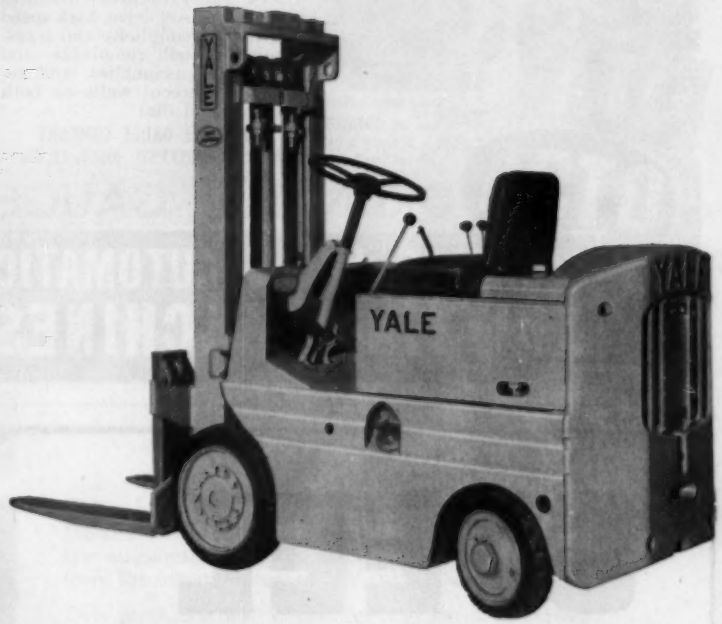
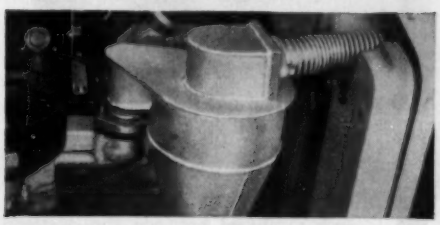


POSITIVE EXHAUST CONTROL

Flame suppressor (top) and **cyclone muffler** (bottom) prevent emission of hazardous sparks and flames.



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• NOW... ORDNANCE brings you a major improvement in circular fully automatic knitting machines — the new OTSA 32" model with 32 FEEDS! For *really* fast output of top quality Jersey with 1" x 1" rib border here is an incomparable production unit . . . the answer to low unit cost, top operating profit. Check *many* exclusive features such as 2-speed drive, high speed (15 RPM), simplicity and accessibility of all removable and replaceable assemblies, and replaceable forecut walls on both cylinder and dial.

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In this way, the best color value is obtained from the dyes because some exhaust better at lower temperatures than others. Salt is added either on the rise or during the cooling period for the same reason.

For vats, Carter makes up the required amount of hydro and caustic plus a wetting agent and runs this mixture into the beck. After the chemicals are well distributed, the vat pigment is added over a period of 30 mins. at 80° F. Then the temperature is run up to 120 to 140° F., as required by the dyes, over a 2-hr. period and held for 30 mins. longer. During this time, small amounts of hydro are added at 10-min. intervals to maintain proper reducing conditions.

The bath is then partially dropped and refilled with water several times over a 30-min. period to remove excess chemicals.

Oxidation with peroxide or perborate follows, and the temperature is raised to 120° F. Soap is then added, and the bath is run for 30 mins. at 200° F. Two full rinses at 140° F. followed by a cold rinse complete the dyeing.

Goods Are Finished Wet

Extracting and applying finish in one run is made possible by the double set of squeeze rolls of the Tubetex machine. Carter applies simple oil finishes to most ribbed fabrics and may add starch or gum to formulas for jersey-knit fabrics. Care is taken to select softeners that do not yellow during the drying process to follow.

Two Proctor & Schwartz dryers and one National loop dryer handle the dyehouse production. Several strands of fabric are run at the same time and delivered to the upper floor where the final finishing operations are completed.

After drying, the goods are put through a Tubetex finishing machine. In this system the fabric is led over a specially designed header that fits between two power-driven wheels about 4 ins. in diameter. The wheels have a grooved rubber surface, and their surface speed can be set to deliver more fabric than the following nip rolls can take up.

As the goods pass over the header they are thoroughly steamed; so the slack produced between the overfeed and the nip is absorbed. This operation also evens and sets the width of the fabric, and when it is completed the goods are ready for the cutter.

Carter is a fully integrated operation and produces finished garments in a number of categories for men's, women's, children's and infants' wear.

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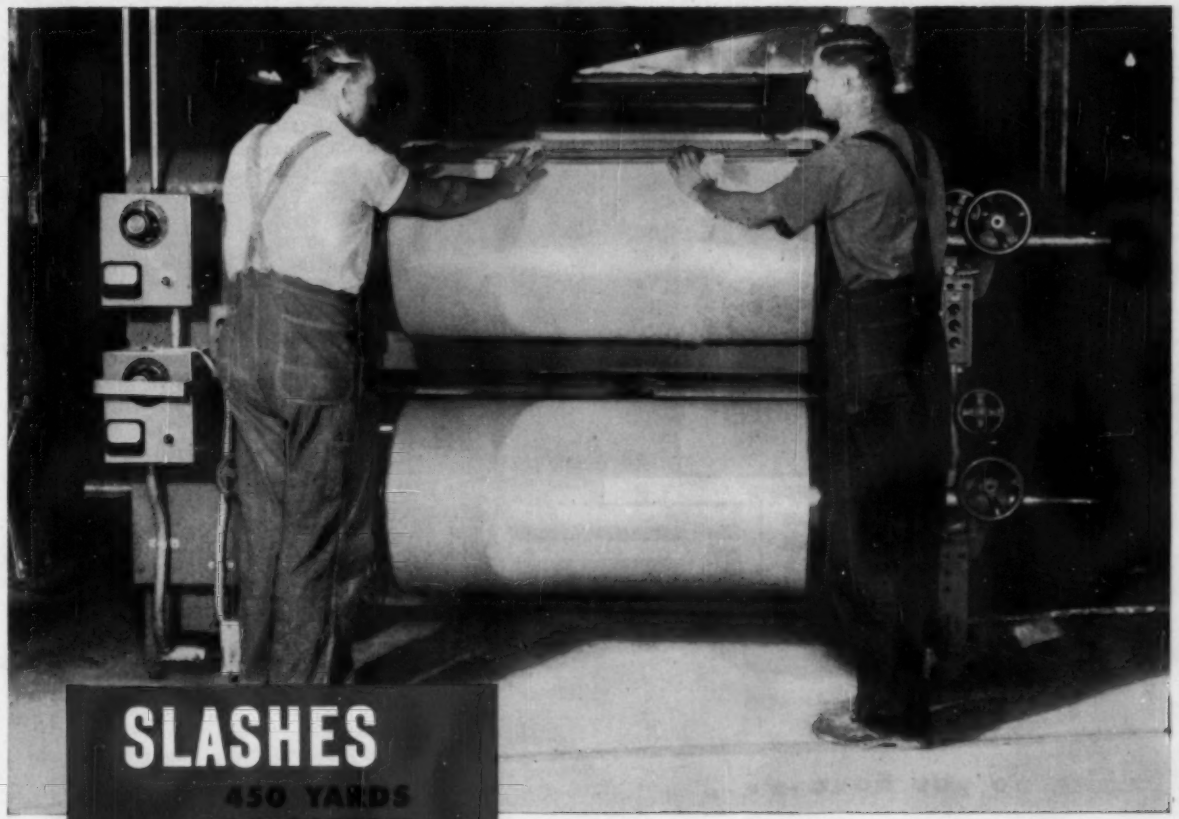
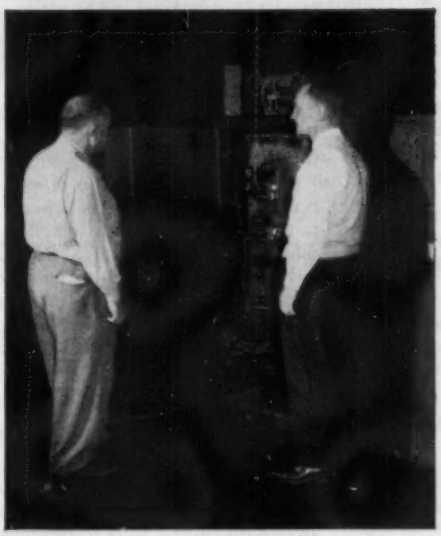


SLASHES

450 YARDS OF COTTON PER MINUTE



This double-beam slasher is powered by a Reliance Packaged Multimotor Variable-Speed Drive, with the automatic drive controls located 20 feet away from the machine, completely out of the way.

This particular mill is slashing 450 yards of cotton yarn every minute, and is running an average of 12 hours per day.

Reliance Slasher Drives give up to 25% greater production at lower cost by winding more yarn per beam.

They are completely packaged, factory wired and tested.

Speed ranges from slow, uniform creep up to high (225 ypm.) line speed. Adjustable speed, heavy duty Reliance Gearmotors supply the drive power. What's *your* drive problem?

Write for Bulletin D-2311 today. D-1513

RELIANCE V★S DRIVE®

RELIANCE ELECTRIC AND ENGINEERING CO.

Dept. No. 215A Cleveland 10, Ohio • Offices in Principal Cities

Canadian Division: Welland, Ontario

In textiles today...
it pays to take a
Plant-Wide Look
A
at weighing!

which do you have...

isolated scales... or a modern
weighing system to control your costs?

The textile industry is under pressure . . . to reduce costs . . . raise efficiency. And managements today see *weighing* in a new perspective—not as isolated scales, but as a vital element in the overall cost-control system. This means the right scales in the right places . . . to supply basic accounting records of materials received, processed, shipped, transferred.

Weight records directly affect costs, inventory control and customer billings. Weights must be right the *first* time. Whether discovered or not, weighing errors can lead to losses in profits and customer good-will.

To assist you with your "weight control" problems, Toledo offers the choice of a complete line of models, plus the experience and services of factory-trained representatives conveniently near you.

NEW* TOLEDO WEIGHT FACT KIT . . . *Shows you the job your scales are now doing! This new Toledo Weight Fact Kit will help you determine how well your scales measure up as a *weighing system*—show you if any scales are "misfits" in capacity, application or location—help you detect weighing inefficiencies that drain off profits. It's free—no obligation! So be sure to request yours. Address Toledo Scale Co., 1409 Telegraph Rd., Toledo 1, Ohio.

TOLEDO®
HEADQUARTERS FOR SCALES

SERVICE Factory-Trained 200 Cities

CARDING PRODUCTION

CONTINUED FROM PAGE 135

added. The new frames will have Adams stop motions and Parks-Cramer overhead cleaners.

In Mill No. 2, there are 16 new Whitin 114-spindle, 8-in.-gauge Inter-Draft frames that make 1.50- and 2-hk. rovings.

Mill No. 1 spins 6s to 16s single and plied yarns; Mill No. 2 specializes in 18s to 30s plied yarns. A total of about 750,000 lbs. a week are produced by both mills, and most of the yarn goes to knitters.

Since the article on Harriet's spinning modernization was published, No. 1 mill has decided to install 22 Whitin Super-Flex F5 240-spindle, 4-in.-gauge frames equipped with Pneumafil creels and central-collecting systems. The 44 frames in use will be equipped with Pneumafil creels, and new Parks-Cramer overhead cleaners will be added.

Two new Foster 102 winders will be installed.

Building improvements scheduled for this year include a 50x86-ft. addition to the opening room, a 35x396-ft. addition to No. 1 mill, and a new elevator and shaft.

SOLUBLE-COTTON FABRICS

CONTINUED FROM PAGE 109

Because both the acrylonitrile and the chromic acid are absorbed selectively from their respective baths, the solutions of the chemicals are fed at a rate that maintains the proper concentrations. Flowmeters check the rate of flow and provide flow-rate reference points for repeat runs.

Harry Weisberg, chief chemist of Londat Aetz Fabric Co. was granted U. S. Patent 2,724,632 for the process. The fabric is marketed under the trade mark Solvotex.

How Lace Is Finished

Londat Aetz also finishes Schiffli laces applied to its product as well as laces applied to very thin silk fabrics. The silk backgrounds can be dissolved away with caustic soda to produce the same effect that is obtained with the modified-cotton backing.

The first step in the finishing process is to wind the lace onto a perforated stainless-steel drum 18 ins. in diameter. The usual load is 30 to 40 yds.

The drums are immersed in a trough-like tank containing the caus-

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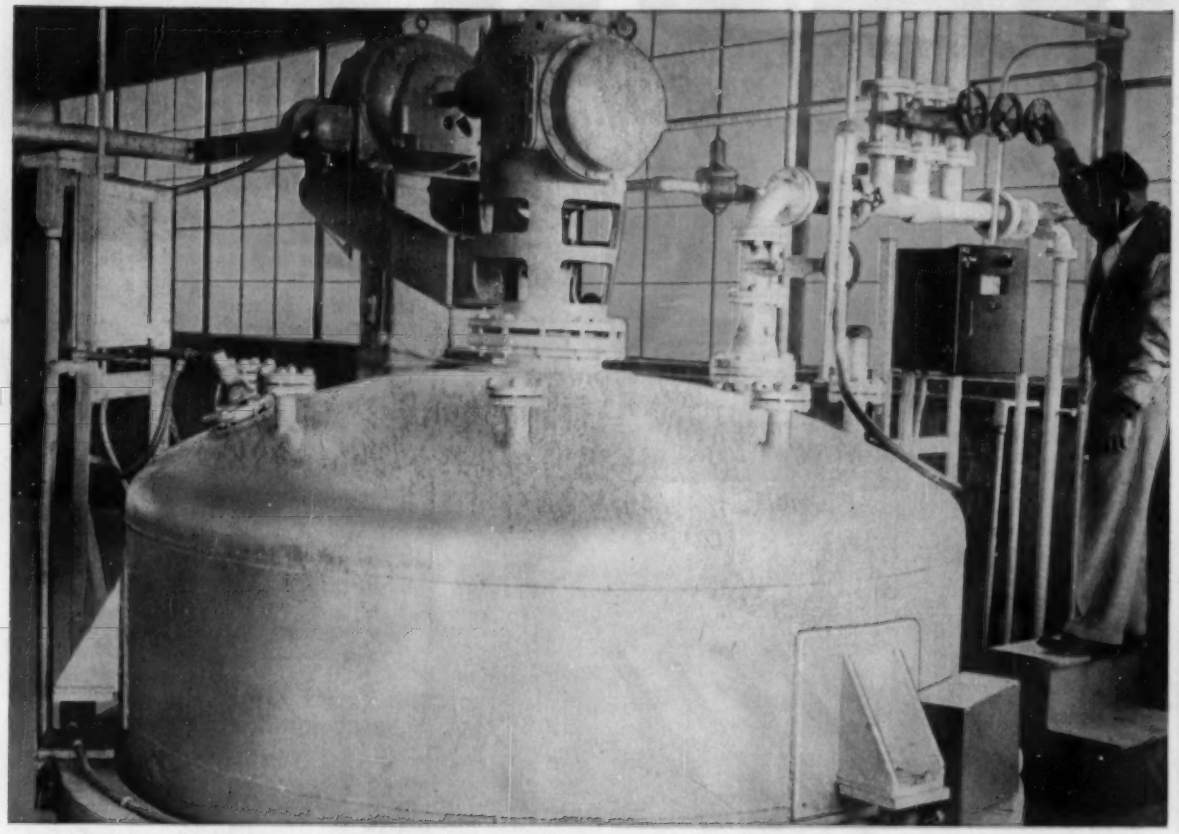
Naugatuck LOTOLS*

READY-FOR-USE LATEX COMPOUNDS

(Photo courtesy Baldwin-Lima-Hamilton Corp.)



He's thrown away the measuring can

MODERN 4000-gallon latex compounding tanks, continuously weighed by means of electrical load cells, permit each ingredient to be added directly from storage *with precise measuring accuracy.*

Such equipment in our strategically located plants assures LOTOL users that each batch, each shipment, of these custom-compounded latices will be "just what the doctor ordered" for *their specific use...on their equipment.* It also assures them of speedier service in filling their orders. Both are important considerations in keeping production running smoothly in paper mills, textile mills and carpet mills.

Whether you buy natural or synthetic rubber latex, plastic latex or ready-to-use LOTOLS, order from NAUGATUCK CHEMICAL, the name that means *most* in LATEX... *most* in uniform quality... most in application engineering assistance!

*LOTOL is Naugatuck's registered trade mark for its ready-to-use latex compounds formulated for your specific application on your equipment.

United States Rubber

Naugatuck Chemical Division

Naugatuck, Connecticut

BRANCHES: Akron • Boston • Chicago • Memphis • New York • Philadelphia • **Mfg.:** Naugatuck • Gastonia • Los Angeles • **CANADA:** Latex Div., Dominion Rubber Co., Ltd., Montreal • **Cable:** Rubexport, N. Y. Rubber Chemicals • Synthetic & Reclaimed Rubber • Plastics • Agricultural Chemicals • Latices

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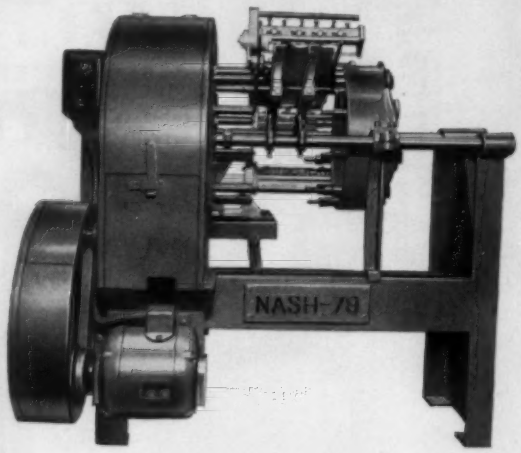
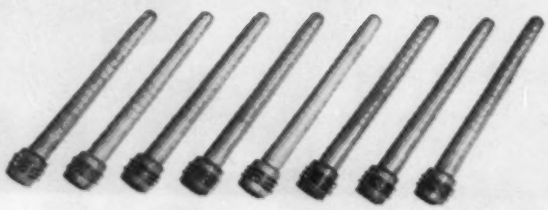
NASH

"Number Seventy-Nine"





The Only Machine That Cleans And Polishes Quills AUTOMATICALLY

Illustrated Bulletin Upon Request

ROUGH quills tear delicate filaments —increase production costs. Prevent broken picks with a NASH No. 79 Machine that polishes quills *automatically*. Standard equipment in leading textile mill operations.

SPECIAL FINISHING MACHINES SINCE 1890 NASH

J. M. NASH *Company*

2365 N. 30th Street • Milwaukee 10, Wisconsin

tic solution and coupled to a turning mechanism. The temperature is raised to the boil, and the goods are rotated in the caustic for 30 to 40 mins. to dissolve out the backing.

Neutralizing and rinsing baths follow to get the lace ready for the bleaching or dyeing to follow.

Bleaching is generally done cold, with a hypochlorite bleach used. The greater part of the production is finished white, but there are always orders calling for dyed lace.

How Pastel Shades Are Handled

For pastel shades, the plant bleaches the lace to get a good bottom and then dyes to shade with direct colors. Darker shades are dyed without prior bleaching.

The dyed goods are dried on special machines built at the plant. The perforated cylinders carrying the wet cloth are mounted in stands to which hot air is ducted and delivered under slight pressure to the inside of the cylinders. Moisture is removed as the hot air filters through the layers of fabric.

When the goods are dry, they are wound off onto cardboard tubes for shipment to customers.

RECONDITIONED LOOMS

CONTINUED FROM PAGE 143

are weaving 68x68 plain cloth at 115 ppm.

Some troubles developed on the first looms that were rebuilt under the present program. Several of the old loomsides broke under the stress of the higher speeds; so the mill decided to install heavier sides on all the looms that were rebuilt. The driving belts became frayed and were short-lived, but a change in the sheaves corrected that trouble.

In the original design of the drive, the brush that relayed current to the magnet contacted a flange that projected inside the crankshaft outer bearing. After the loom was in operation for awhile, lubricant would seep through the seal and neutralize the brush.

A ring mounted on the outside of the flywheel and an outside mount for the brush have corrected this condition.

The rebuilt looms equipped with the Warner electric clutch and brake are giving satisfactory service at Japanna.

Three men assigned to the project are turning out two rebuilt looms every week.

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Shamrock No. 19 Trucks with "Vyntex" Plastic-coated Duck Body.

think of
SHAMROCKS
when you want
RUGGED WEAR
...LONG SERVICE!

. . . Says "MARK-O-MERIT"®

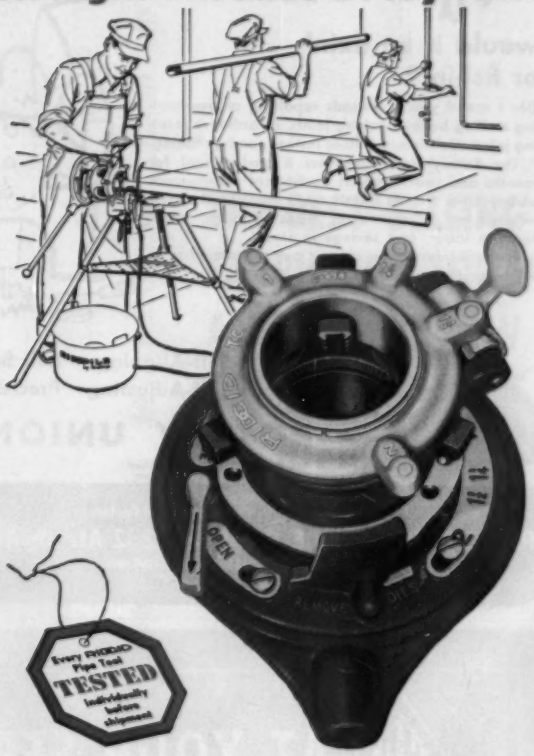
Look carefully at any Shamrock's sturdy construction. You'll see why many textile plants report longer years of wear, at low cost, from famous Shamrock products. Shamrocks are used the world over—and an extensive range of styles is designed for textile plant needs . . . for example, the Shamrock No. 19 "Vyntex" Truck shown at top. Also, special Shamrocks will be made-to-order for your particular needs. Contact nearest sales office or write direct. MEESE, INC., Madison, Indiana.

SALES OFFICES: NEW YORK—F. R. Tyroler, 55 West 42nd St., PE 6-0615; ATLANTA — W. E. Petway, 2577 East Densley Dr., North Decatur, Ga., ME 6-3192; FORT WORTH — V. M. Hooton, 4220 Normandy Road, Tel. JEfferson 6-6564; WEST COAST — Petersen-Daniels, Inc., 3311 Beverly Blvd., Montebello, Calif., RAymond 3-7003. Export Mgr. — R. A. Auerbach, Easton, Pa. Cable Address: "Natly."

SHAMROCK
- *HAMPERS*
- *CANVAS BASKETS*
- *TRUCKS*

RIDGID

Jam-proof 65R Now Guarantees Straight Threads Every Time



. . . Revolutionary New TC (True-Centering) Workholder centers all pipe, even over or under size

No more crooked threads! 65R pre-sets to size by turn of TC Workholder gauge ring —tightens by palm-of-hand push on forged cam lever. All 3 jaws close together on pipe by one mechanical action. Always straight threads, jamproof, 1″ to 2″ with 1 set of dies, fast size change—only 65R offers you so much for your money. Buy it at your Supply House.

P.S. The new TC workholder fits your present 65R!

The Ridge Tool Company • Elyria, Ohio, U.S.A.

RIDGID
Work-Saver Pipe Tools

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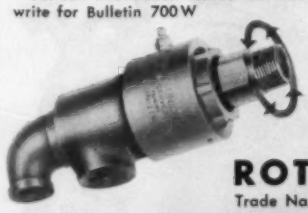
If you had your "druthers"

would it be fixin' or fishin'?

Don't spend your weekends repairing or overhauling stuffing boxes, packing joints, or ordinary rotating joints. Get Rotary Unions instead, and go fishing.

The Rotary Union provides a perfect seal for months and years without mechanical maintenance of any kind. It costs a little more than the cheapest — pays for its cost many times in parts, maintenance labor, and savings in steam.

For full information contact our nearest office or write for Bulletin 700W



Self-Aligning Ball Bearing
Self-Adjusting Precision Mechanical Seal

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Trade Name — Patented

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SPECIALIZED ENGINEERING
SPECIALIZED EXPERIENCE
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FOR
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2231 E. Ontario Street
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CUT SPINNING COSTS

CONTINUED FROM PAGE 141

One Barber-Colman spooler and one high-speed warper were overhauled as part of the spinning-department modernization. The improved machinery permitted the number of spooler and warper operators to be reduced from 17 to 14. Warper breaks dropped from 26 per 35,000 yds. to 5.

New Westinghouse fluorescent lighting was installed throughout the department, which increased operator efficiency appreciably.

Other improvements made at Alma Mills last year included modernization of the carding department and tightening up of the weaving operation Total personnel was reduced from 403 to 276, or 31.5%, and over-all cost was cut 18%. Further reductions in personnel and costs are planned on a progressive basis.

PREVENT BROKEN FILAMENTS

CONTINUED FROM PAGE 121

However, the best slashing cannot eliminate broken filaments already in the yarn from a preceding department.

The slasher helper should spend most of his time sitting beside the back lease rods watching for broken filaments and broken ends. This job is a sleepy and boring one, but it must be done.

When warps are drawn in on new or freshly cleaned harnesses, the heddles must not be rough and the eyes must not be cut. Drop wires must be smooth. The reeds should be the square type with 60-to-40 air space, and the dents must be smooth.

Filling Winding Is Hazardous

The filling-winding department has more hazards for broken filaments than any other yarn-preparation department because the yarn is handled on smaller packages, there are more of them, and each of them is subjected to the usual hazards.

Employees must be trained to handle the packages carefully, never touch the yarn by hand if they can avoid it, and keep their hands clean. Washbowls and hand towels help keep yarn clean, and white gloves are often effective.

Cone tips, bobbin flanges, bobbins, compensator guides, traverse guides, feeder rolls, quill chutes, and tension

Model SAAF-C
Plain, Variable Striped and Patterned Jersey

Model SAAF-O
Sleeve and Body Jersey with Elastic Rib Trim & draw-thread separations

Model MLT-SA
Plain and Striped, Regular and Long Loop Terry

Model SA; SAR-PP
Plain, Striped or Patterned, 1x1 and Swiss Rib with draw-thread separators

Model LRP
"Vent-Knit" Patterned mesh

Model ROF
Jacquard-Type Floatless Patterns

Model MJ
Body Size Jersey

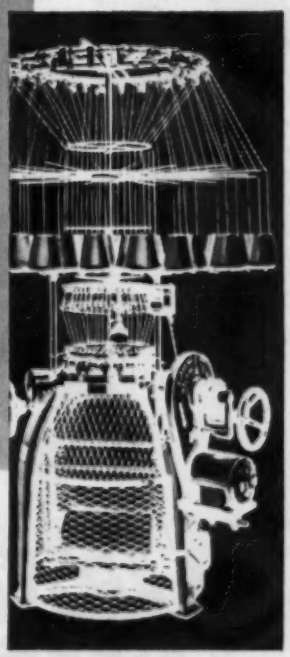
Model IC
Fleece Coatings

Models ML; MLV
Pile, Loop and Plush

Model SAI-PP
Interlock

Model HP
High Pile, Imitation Fur, Lining Fabrics and Carpetings

SPECIALIZED INDUSTRIAL FABRICS



THE BEST-SELLING FABRICS OF TODAY AND TOMORROW ARE *PROFIT-KNIT* BY SUPREME MACHINES

New and faster ways to knit the fabrics the world wants . that's the formula responsible for Supreme's dynamic line of successful circular knitting equipment.

By giving the outerwear and underwear industry higher production, market-meeting versatility plus new types of fabric, Supreme has opened new routes to profit. Today, Supreme research is smashing more profit barriers. It is finding new ways to give knitters more production per square foot of space, more poundage per operator, more profit per day.

When you modernize, be sure to get the facts on Supreme's newest profit-knitting developments.

SUPREME
KNITTING MACHINE CO., INC.
94-02 104th STREET, OZONE PARK 16, N. Y.
Southern Representative and Showroom:
The Mallack Co., 914 East 4th Street, Charlotte, N. C.

SK-185

What's the trick in estimating Tricot yield for 40-Den. Jersey?

How do you prevent oily yarn? Do acid dyes increase wool fiber diameter? Who handles hosiery expanding forms? Anything new in nappers? Nothing but headaches around here!

Nobody expects you to know all the answers—only the ones to the questions that keep coming up day by day. Maybe that's why more and more mill men keep their copies of the FACT FILE right close by . . . so they can reach, read and relax. Get yours out where you can grab it quick, you'll be surprised how resourceful it can be.

No ordinary directory this . . . but literally 3-services-in-one—pages packed with reference data, a buyers' guide, and comprehensive catalog. 354 pages of urgent, useful material . . . made for you and your job . . . put together by the field's leading publisher . . . tested, expanded, improved year after year. Every TEXTILE WORLD subscriber gets a copy of the FACT FILE, thousands dig into it until it's dogeared. Get the habit. It pays.

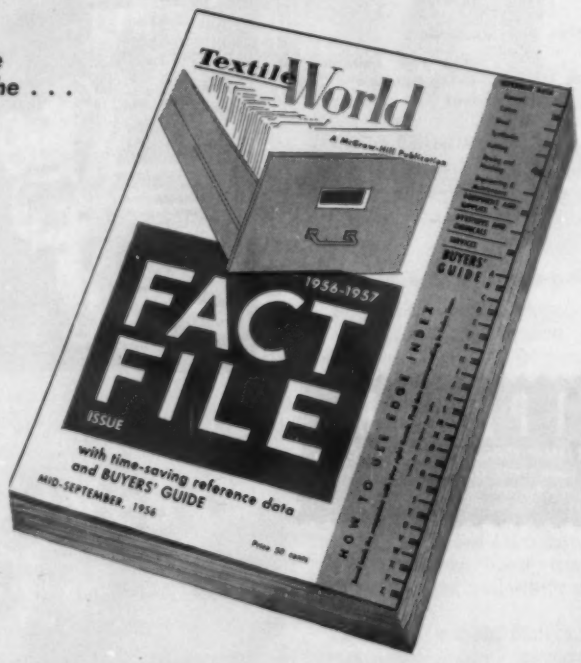
A SECOND SET OF BRAINS

A walking encyclopedia of reference data . . . *General, Cotton, Wool, Synthetics, Knitting, Dyeing and Finishing, Engineering and Maintenance.* Loaded with worth-their-weight-in-gold charts, tables, formulae.

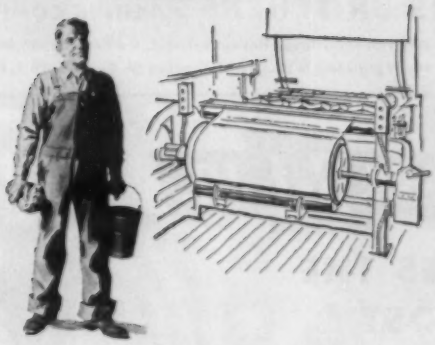
A complete, classified, easy-to-find-it Buyers' Guide when you have to know, and fast . . . who makes and sells *Machinery and Equipment, Chemicals, Dyestuffs, Supplies, all sorts of Services.* In fact, well over 2,600 items listed!

An all-in-one-place consolidated catalog of data-packed, highly informative material from the leading manufacturers in the field—*covering every variety of product and service.*

Don't fret—chances are you'll find your answer in the . . .



Maintenance becomes a small item



with Crucible Stainless Steel

On the new continuous high-temperature dyeing machines, rust-free Crucible Stainless prevents deterioration of the various types of pressure seals where the fabric enters and leaves the pressurized vessel. Dye liquids, no matter how damaging, can be handled by Crucible Stainless without deterioration because its polished surface resists corrosion and Crucible Stainless is renowned for quick, easy cleaning. Pin boards, bobbins and yarn carriers produce much better yarn when made of Crucible Stainless because it won't snag the yarn — it actually stays smooth forever.

It will pay you to find out more about how this cost-cutting material can make equipment turn out better quality yarn at lower cost. Do either of 2 things: (1) Write for Crucible's 32-page booklet, "Making the Most of Stainless Steels in the Textile Industry", or (2) Get in touch with your local Crucible representative. *Crucible Steel Company of America, Oliver Bldg., Mellon Sq., Pittsburgh 22, Pa.*

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

Canadian Distributor — Railway & Power Engineering Corp., Ltd.

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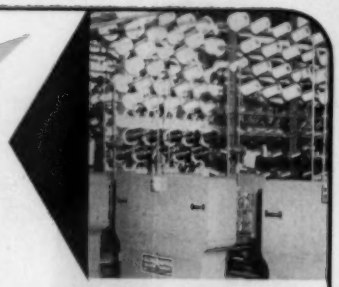
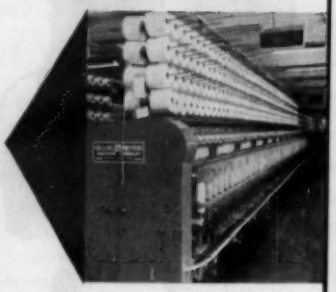
There is a Collins Twister for every Ply Yarn Construction





Collins produces the most complete line of twisters on the market . . . Novelty, Ply, Big Ring, Beam, Cabling, Wet, Trap, Rayon, Paper, Glass, Single or Dual Drive, and Special Twister Take-ups.

Since 1866 Collins Twisters have been the finest in the field. Today's line offers you many valuable exclusive features. Let us give you full information on the machines you need.

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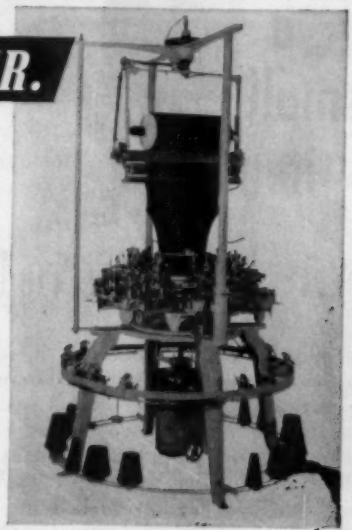
ALL NEW...
TOMPKINS S-1 JR.

MAKES THE MOST PERFECT CLOTH POSSIBLE



HERE'S A TYPICAL EXAMPLE...

Model S-1 Junior making fleece with 400-lbs. of Carter 26's and 8's —five feeds, 18" cylinder, running time 68-turns per minute . . .

- NO IMPERFECTIONS
- NO BROKEN NEEDLES

You can produce any class of cloth in the wide range of circular spring needle knitting—in greater quantity, with less waste and less needle breakage—on the New S-1 Junior! It gives you the proven Tompkins system in fully modern form . . . with triple stop motions, furnishing wheels, new gearless drive, automatic oiler and air cleaner! Get the full story now . . . be among the first to profit!

TOMPKINS BROS. CO.
623 ONEIDA ST. • SYRACUSE 4, N. Y.

Makers of Circular Spring and Latch Needle Knitting Machinery...Since 1846

disks, posts, and guides must be smooth and clean. Cone and bobbin holders must be aligned properly.

The foreman should inspect some of these parts every day. He should also examine bobbins with a strong oblique light.

In some instances, girls inspect each pinboard of filling before it goes to the weave room and okay a ticket for first-quality filling; bad work is returned to each operator.

But some of this inspection labor could be better spent by having the girls patrol the machines to catch bad work at its source. Then each defective spindle could be flagged and corrected. Operators are usually on piecework with no bonus for quality, and therefore they are primarily interested in production volume.

Shuttles Need Care in Weaving

When flat yarns are woven, as in satins and taffetas, shuttles should be given close attention. The inside must be smooth, and the fur must be in good condition with no glue spots.

The shuttle eye should not be cut at any point where the yarn passes over it. Tension pads must be smooth. Tension-pad springs must be in place; lost springs let the pads vibrate and bruise the yarn.

Remove and replace shuttle pins that are cut. Be sure the filling yarn has not cut the shuttle where the yarn passes over the wood or fibre.

When a shuttle rises in a shuttle box or does not enter the box fully at a bobbin transfer, the thread cutter roughens the fibre of the shuttle. This condition must be corrected.

The Loom Must Protect Shuttles

The groove in the shuttle must be deep and smooth; shuttle points must be smooth and properly rounded; the bottoms of shuttles must be smooth, and therefore shuttle boxes must be properly aligned with the race plate.

The top of a shuttle is often roughened by rising in the shuttle box or striking the shuttle guard. Faulty bobbin transfers also roughen the top or bottom of a shuttle.

Keep box fronts smooth and polished. Cover the ends of the race plate with paper, and polish the paper with shellac. Be sure the bottom warp shed does not ride on the race plate and that the glass rod in the reed cradle is not cut.

The feeler wires in the filling stop motion must be smooth and polished and must not strike the shuttle. Pickers must be parallel and correctly centered and must throw a true shuttle.

Temples must hold the cloth out

to please "colorfast-conscious" customers

use

INDANTHRENE®

VAT DYES

Your customers demand that dyed or printed cottons and rayons be colorfast. To them, the hallmark "Vat Dyed" or "Vat Printed" on the label or selvage of these goods is assurance that the colors are the best available for fastness to light, washing, perspiration, and dry cleaning. Vat colors assure you, too, of protecting the reputation of your product by preventing color failures.

In the textile industry, GDC's Indanthrene vat dyes are known for their unvarying high quality and wide range of colors. Indanthrene vat dyes are available in dispersible powders and "Infra" pastes, with the particle size most effective for the color itself and the dyeing or printing operation involved.

Call upon our Technical Service Department for assistance in any color or color-matching problem.

From Research to Reality

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Indanthrene Vat Dyes manufactured by the General Aniline and Film Corporation are sold outside the United States under the trademark "Fenanthren."

CARTER TRAVELERS

are champions in the textile industry!

. . . because they are *scientifically* conditioned to run smoother and faster with less wear on expensive rings. The trainer—a modern metallurgical laboratory where highly trained technicians guard the *QUALITY* and speed the *SERVICE* which have made CARTER TRAVELERS "champions" in the field.

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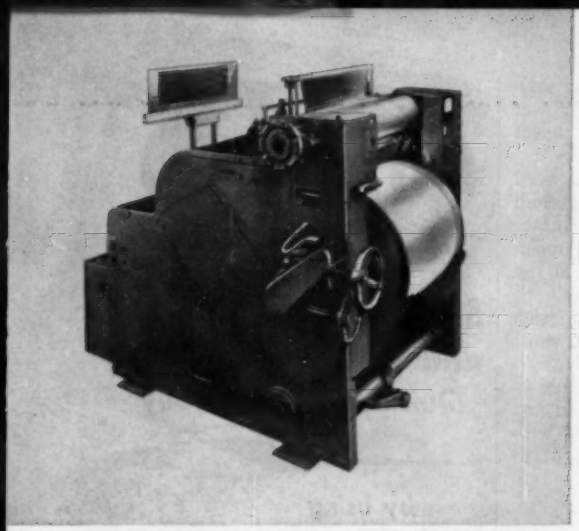
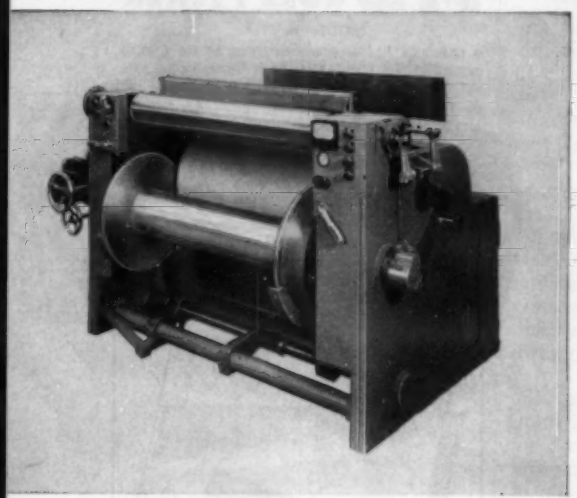
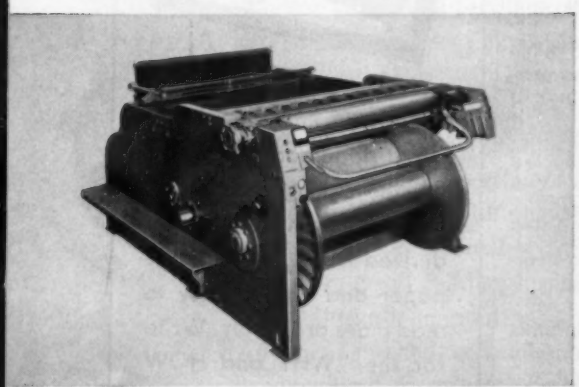


1 KIDDE-SIPP 21" TRICOT WARPER—handles beams with 14" or 21" diameter flanges and with lengths up to 21". Minimum yarn speed is 75 YPM; maximum is 600 YPM.



2 KIDDE-SIPP 42" TRICOT WARPER is the same as the 21" Warper except that it will handle beams up to 42".



3 KIDDE-SIPP HIGH-SPEED COTTON SYSTEM WARPER—handles 54¼" or wider beams with flanges up to 36". Pushbutton controls. Constant yarn speeds to 900 YPM.

3 NEW WAYS ...to make better beams

ALL THREE of these new Kidde-Sipp warpers make better beams because all three have these Kidde-Sipp features:

Beam doffs automatically—even a girl can doff a 2000 pound beam easily, in a hurry, and single-handed. She just pushes a lever and a hydraulic system does the work . . . swings the beam down and out of the warper.

Yarn is never scuffed—because brakes on the measuring roll, compression roll, and beam are all synchronized electrically. When one stops, they all stop simultaneously. There's no strain to scuff the yarn.

Yarn builds up evenly—because the compression roller has 2 hydraulic cylinders—one at either end (instead of just 1 in the center). This produces even, balanced pressure which assures even build-up of yarn. And hydraulic loading ends all chatter and bounce.

Because there are neither counter shafts nor chains and sprockets in the drive, smooth and trouble-free operation is assured. There are a lot more good reasons why you get a better beam with these three Kidde-Sipp warpers. Find out more about it by writing to Dept. WA-1.

TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS • BEAMERS
CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS • TENSION COMPENSATORS

Kidde MANUFACTURING CO., INC. — 42 FARRAND STREET — BLOOMFIELD, NEW JERSEY

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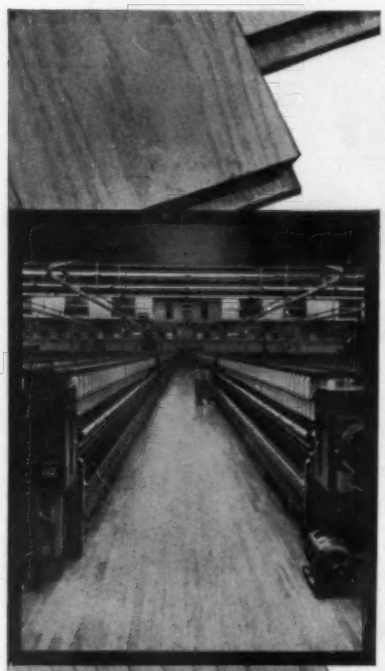

easy!

–on the feet
–on the eyes
–on the budget

The **MFMA** brand on the underside of genuine Northern Hard Maple is your guarantee. You *know* your floor will fight scars and dents for years—won't splinter — will brush clean easily, be easy to finish or refinish. It'll create no dust, harbor no dirt, and *feel wonderful under foot.* Write for 1957 list of **MFMA**-approved floor finishing products. See Sweet's (Arch. 13j-MA) for full data.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
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NORTHERN HARD MAPLE
the finest floor that grows
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wide enough to prevent chafing selvage ends. Keep picker-stick power as light as possible, and keep power straps high on the picker sticks.

The reed must be set in the reed cradle so that the yarn does not pull sideways. Cover the contact surface of the transfer hammer with moleskin tape to protect the filling at the transfer.

Bobbins must be straight with smooth tips. The woven cloth must pass over smooth surfaces only.

The most effective way to observe broken filaments at machines in any department is to use a flashlight with strong batteries. Shine the light at an oblique angle.

VINYL LAMINATES

CONTINUED FROM PAGE 153

produce a three-dimensional effect.

At Velveray, laminating and embossing can be set up as separate operations or as a one-run process. In either case, the embossing is done on a special calender carrying the embossed steel roll and its mating paper bowl.

Contrary to some embossing processes, the embossing roll is kept chilled by a steady flow of cold water through its hollow center. The heat that is necessary to soften the film so that the pattern will be sharply impressed is applied to the film itself. The usual embossing pressure is two to four tons.

To produce the embossing, the film is led over a steam-heated drum over which radiant heaters are mounted to speed up the effect; and then it passes into the cooled nip of the embossing rolls, which impress the pattern on the film. The film then passes over cooling cans and onto a batcher.

Laminated and unsupported films that have been embossed are used extensively in wall coverings, upholstery, and seat covers.

MACHINE LAYOUT

CONTINUED FROM PAGE 145

barber cloths, and many other items for the linen rental trade. Finishing is done at the company's Hawkinsville, Ga., plant and at Pepperell's finishing plant, which is only 3 mi. from Opelika. A new garment plant was built last year to supplement the sewing room located in the mill.

The streamlined layout of its opening, picking, and carding machinery has helped increase production, reduce costs, and improve labor relations at Opelika.

Out Goes LINT · FLY TRASH
from your
SPINNING FRAMES and ROVING FRAMES
Quickly • Economically

by using
M-B AMOSKEAG PNEUMATIC ROLL PICKER
MODEL A-VT-A

A pneumatic tool especially designed for the specific purpose of REMOVING LINT and FLY from the top rolls of Spinning Frames and Roving Frames. Saves time and does a better job by substituting mechanical cleaning instead of laborious hand methods. Air deflector prevents fly and lint being blown into yarn when spinning. Adjustable valve permits any desired spindle speed.

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A copy of this quick-reading, 8-page booklet is yours for the asking. It contains many facts on the benefits derived from your business paper and tips on how to read more profitably. Write for the "WHY and HOW booklet."

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Sulphonated fatty oils . . . the solution to many a textile processing problem . . . are more important than ever before! Mills everywhere are turning to these surface-*active* agents because of their new uses and increased value in the wet processing of textiles. Jacques Wolf & Co., leading sulphonator for over half a century, offers a *complete line* of sulphonated oils for imparting a soft full hand; plasticizing; scouring; and lubricating in dyeing and finishing and other processing uses. Advanced methods of sulphonation have made Jacques Wolf & Co. sulphonated fatty oils better than ever. Write for samples and further information

JACQUES WOLF & CO.
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Plants in: Clifton, N.J., Carlstadt, N.J., Los Angeles, Calif.

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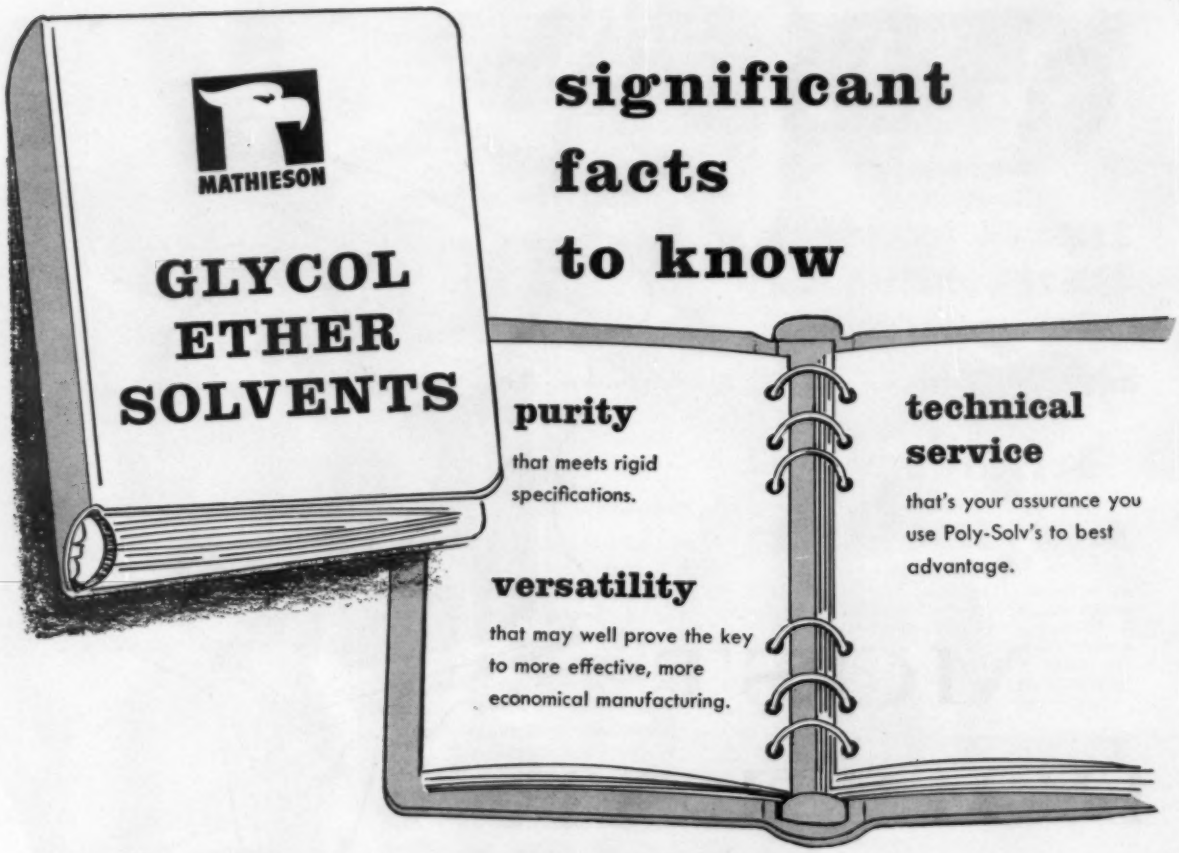

significant facts to know

purity

that meets rigid specifications.

versatility

that may well prove the key to more effective, more economical manufacturing.

technical service

that's your assurance you use Poly-Solv's to best advantage.

will one or more of these solvents improve your process?

	Poly-Solv EM ethylene glycol monomethyl ether	Poly-Solv EE ethylene glycol monoethyl ether	Poly-Solv EB ethylene glycol monobutyl ether	Poly-Solv DM diethylene glycol monomethyl ether	Poly-Solv DE diethylene glycol monoethyl ether	Poly-Solv DB diethylene glycol monobutyl ether
Boiling point at 760 mm— °C	124.5	135.1	171.2	194.2	201.9	230.4
Flash point (open cup) °F	115	130	165	200	205	240
Vapor pressure, 20°C	6.2	3.8	0.6	0.2	0.1	0.02
Viscosity (absolute) 20°C—cp	1.7	2.1	6.4	3.87	4.5	6.49

Mathieson Poly-Solv's are completely soluble in water at 20°C; have a color APHA of 15 maximum; are shipped in 4,000, 6,000, 8,000-gallon and compartmented tank cars as well as in 55-gallon resin-lined drums.

Poly-Solv® is a trademark

For data sheets and other important information, get in touch with your Olin Mathieson representative.

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FACT: The new Life-Line A has stronger insulation than any motor on the market

Meaning what? Simply that the new Westinghouse Life-Line® "A" motor with new *fortified insulation* can withstand heavier overloads and operate at higher temperatures than any other motor you can buy. That's electrical system improvement!

There are equally important advances in the Life-Line "A" mechanical and lubrication systems. It takes the right combination of *all three systems* to build industry's most preferred "power package".

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FOR BALL AND ROLLER
BEARINGS

BALL BEARING LUBRIPLATE . . . a most effective grease type lubricant that also protects ball and roller bearings against rust and corrosion. Highly recommended for speeds up to 5,000 RPM and temperatures up to 300° F.

LUBRIPLATE No. 205 . . . an unusually light consistency, grease type lubricant made for use in anti-friction bearings operating at speeds in excess of 5,000 RPM.

LUBRIPLATE Nos. 1, 2, 4 and 8 are fluid type lubricants of various viscosities that have given outstanding results in anti-friction oil type bearings. Nos. 1 and 2 are recommended for high speed applications; nos. 4 and 8 are recommended for slow speed, heavy load applications.

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Write for free "LUBRIPLATE DATA BOOK". . . a valuable treatise on lubrication. LUBRIPLATE DIVISION, Fiske Brothers Refining Company, Newark 5, N. J. or Toledo 5, Ohio.

Good Lubrication Practices Reduce Maintenance Cost

Lubrication has a great effect on production and on maintenance cost. One objective of lubrication is to keep machines running smoothly and turning out an acceptable product. The main objective is to reduce wear in the elements of the lubricated machine.

In plants where adequate records have been kept, the records show that machine maintenance cost can be reduced 10 to 25% by establishing correct lubrication practices.

A good lubrication program must be planned and must have the backing of management men so that adequate authority, equipment, and employees will be provided.

Select a Head Man

One of the most important moves in setting up a lubrication program is to appoint a suitable man to head it. He should be thoroughly familiar with lubricants and with other phases of machine maintenance.

In some plants, the man chosen may be a lubrication engineer, a master mechanic, or a maintenance foreman. In a smaller plant, a well-qualified man from the maintenance department is suitable.

At an early stage of your program, invite assistance from your oil supplier. Ask him to provide an experienced lubrication engineer to: (1) work with your people in surveying your plant, (2) consult on all phases of the lubrication program, and (3) assist in training lubrication employees.

Because an experienced lubrication engineer will have been in many plants, he will be able to bring you a wide range of ideas that are adaptable to your plant.

13 Steps To Set Up a Program

These 13 steps should be taken to set up the program:

1. Record and identify all machines.
2. Tentatively select lubricants for each part of each machine.
3. Study the list of lubricants to reduce the number of brands to a minimum.
4. Prepare lubrication charts and machine cards to indicate the brand of lubricant for each part of each machine, how it is to be applied, and frequency of application.
5. Select a method for marking lubricated points so that the correct brand of lubricant will be applied at each. Common methods involve tags or decals to show color, symbol, or number combination.
6. Plan schedules and routes for lubrication men.
7. Evaluate the suitability of lubricant application methods and make recommendations where changes are needed.
8. Establish a record system that will provide checks on lubricant application and maintenance of lubrication systems.
9. Establish another record system that will prove whether benefits in reduced maintenance and production costs are being obtained. This proof must be available to justify the cost of the lubrication program.
10. Study handling, storing, and dispensing facilities and procedures to see that they are efficient and economical.
11. Establish economical practices in the purchase of high-quality lubricants.
12. Train lubrication personnel in the fundamentals of lubrication and the use of their equipment by group discussions and by providing practical lubrication texts.
13. Study purification methods and equipment and the reuse of purified oils, and make recommendations if changes are needed.

Standardize on Lubricants

A wide variety of conditions is found in any plant where a lubrication program is set up. In one plant, for example, the foreman of each department determined the oil and grease used. This practice resulted in stocking an unnecessarily large number of brands.

In many instances, the brands were duplicates from different suppliers. Some of the brands were bought uneconomically in small quantities, and

ACETATE STAPLE

puts selling power in soft fabrics

It started in Paris and it is amazingly strong!

The soft look in suitings is the big trend for a long time to come. This is the time for acetate. Acetate staple combined with rayon makes possible the soft, supple hand and intrigue of the most expensive fabrics at volume prices.

Acetate upgrades styling—delivering the most varied effects in both reserve and cross dyeing.

Acetate is the key to soft and pliable fabrics that drape gracefully.

Extensive design and production work highlight the advantages of 50% or more acetate in the blend. The reasons are clear:

1. As acetate is increased, resistance to wrinkles is improved.
2. Crease and pleat retention improves markedly as the percentage of acetate is increased.
3. Quantity of resin finish can be diminished as acetate in the blend is increased.

Soft look volume hinges on acetate. The time to plan ahead is now—for those in on the ground floor will profit most. Celanese is ready to tell you what has been done and can be done with the new thinking in acetate. Celanese Corporation of America, Textile Division, Charlotte, North Carolina.

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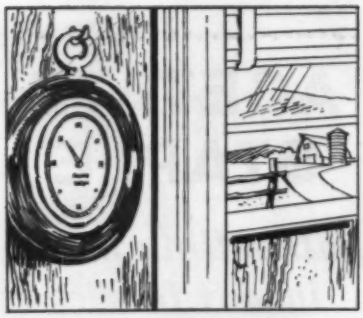


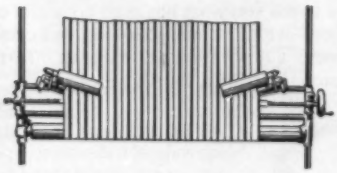
WORLD-FAMOUS GUIDER **for measuring atmospheric pressure is the Barometer which indicates changes in weather.**

WORLD-FAMOUS, **too . . . in textile manufacturing is the ever-dependable**

MECHO AIR GUIDER

FAMOUS FOR SAVING HUNDREDS AND HUNDREDS OF DOLLARS YEARLY BY

- **minimizing costly equipment repair "down-time"**
- **eliminating double edges and spattering**
- **speeding fabric processing**
- **preventing woven fabric spoilage**
- **maintaining cloth alignment and constant width**



Add to all the above advantages: no weights, levers, nor linkages to bother with, extremely low initial and operating costs, infinite adjustability to handle fabrics from the lightest to #8 duck, even in operation . . . then you'll understand why MECHO is considered the greatest buy in Guiders! *ORDER yours TO-DAY.* You'll wonder how you ever got along without it.

FREE! Write for Catalog and ask about MECHO's complete Guiding Service, standard in hundreds of finishing plants handling semi-rigid plastics, artificial leather and rubber, felt, and gauze. Stainless steel, acid- and moisture-resistant units with sealed bearings also available.

GUIDER **SPECIALTY COMPANY**
427 W. Rock Ave.,
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the large number of brands made storage costly and increased the possibility of error in application.

This condition was corrected by a plant-wide survey and consolidation of brands, which resulted in a 50% reduction in the number of brands.

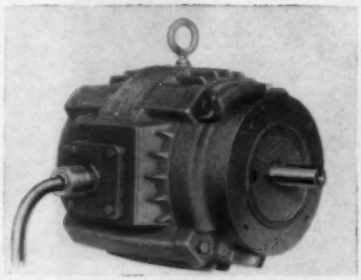
In some plants, a lubrication survey shows excess oil leakage that results in a needless costly loss of oil and a messy, hazardous condition. And oil often gets on the product being made. Important savings can be made by eliminating leakage.

One of the first things in designing a lubrication program is to decide who is to actually oil the machines. In some plants it is satisfactory for machine operators to lubricate their own machines. But more often, best lubrication and higher profits result when oiling is done by trained lubrication men.

In some plants, not enough attention is given to keeping oil clean. The oil may be contaminated by dirt, metal particles, water, etc. Therefore it is necessary to make the mechanical changes needed to keep oil clean. *Robert Q. Sharpe and J. R. Hicks, Eighth Annual National Plant-Maintenance and Engineering Show and Conference.*

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 174



Totally Enclosed Motors

Electric motors in new NEMA frame sizes from ¼ through 30 hp. are available from Reliance Electric & Engineering Co., 1088 Ivanhoe Rd., Cleveland 10, Ohio. The motors are normally supplied in nonventilating construction, and explosionproof enclosures in several groups are also available.

Features of the new totally enclosed line are cast-iron ribbed-frame construction, oversize double-shielded ball bearings, and lubrication with automatic grease release.

Circle T-28 on Reader-Service Card

Tension Control

A tension-control system for winding and unwinding operations has been developed by Pneumatic Applications Co., 79 Meadow Plains Road, Simsbury, Conn.

The control, applicable with any air-actuated clutch or brake, measures and controls tension directly within a transmitter rather than through a remote mechanism. This operation is done by passing the web of material over a load-sensing roll, which is supported on one end by a journal mounted on the sensing transmitter.

The control has the following features: (1) an accurate tension load span from 0 to 2,000 lbs., (2) positive response to load changes down to a fraction of a pound, (3) a simple operating method requiring little training and skill on the part of the operator, and (4) a compact operator's control panel that can be mounted in any convenient location.

Circle T-29 on Reader-Service Card

Static-Free Cot

A covering for spinning rolls that eliminates static at its source has been developed by Dayton Rubber Co., Dayton, Ohio. Called Dayco EW 661, the cot remains hard and dry regardless of heat or humidity and resists all known oils.

Circle T-30 on Reader-Service Card

Spinning-Frame Light

A light to illuminate the ends along the entire length of a spinning frame or twister has been developed by Meiner's Optical Devices, 121 London Wall, London EC2, England. The light, known as a twin-beam thread illuminator, consists of a single lamp box connected by square-section trunking to reflector heads fitted with mirrors and lenses.

Circle T-31 on Reader-Service Card

Wear-Resistant Feed Dogs

Feed dogs that are surfaced with tungsten provide extra-long wear in

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Unlock the door to shade uniformity with **AMACEL*** Dyes for Nylon and Acetate

Your key to uniform dyeing and printing of Nylon and acetate fibers. A leading choice for lingerie, hosiery, blouses, dress goods. Non-dusting, with excellent dispersing properties. Well known for consistent shade purity and simplified application. For details on AMACEL advantages, write or call your A. A. P. representative at our nearest branch.

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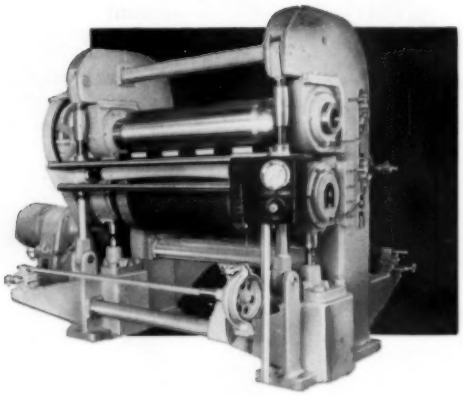
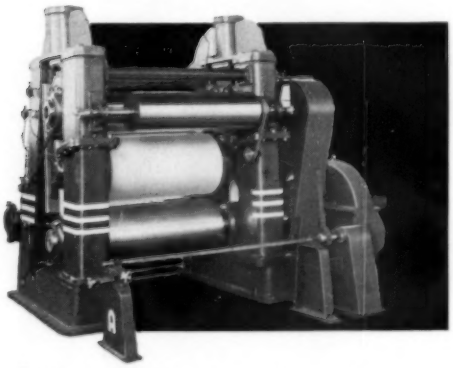
Apply increased production and less maintenance to your everglaze operation with new Appleton Machine efficiency . . . that puts you ahead of competition . . . that protects your profits now and for years to come. Here are 3 ways to do it:

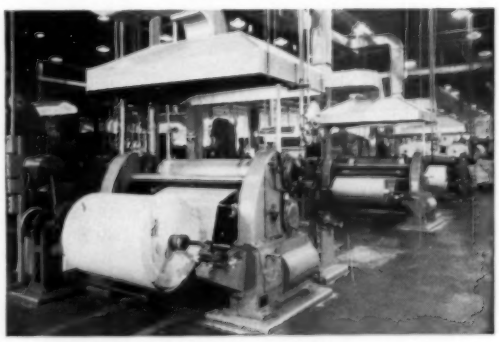
Acceptance Assured: the invisible stamp of approval on every yard of everglaze finished goods that runs through modern, money-saving Appleton Machines. An Appleton man is as close to you as your telephone. Why not call 3-7361, or wire, collect at absolutely no obligation, today.



1 An Appleton 2-roll, 50-ton Hydraulic Schreiner Calender gives goods a beautiful lustre at 40 yards a minute, 25% faster than most machines in use.



2 The Appleton 3-roll, 50-ton Hydraulic Friction Calender irons the finest everglaze finish at 40 yards a minute, increasing output by 25%.



3 The Appleton 20-ton Embosser imbeds the most meticulous or simplest design with equal ease and efficiency, at the standard 20 yards per minute.

CUSTOM-BUILDERS OF TEXTILE CALENDERS • CALENDER ROLLS OF ALL KINDS

service, according to an announcement by Singer Sewing Machine Co., 149 Broadway, New York 6, N. Y.

The feed dogs are bombarded with particles of tungsten from a specially constructed gun, which imbeds the hard metal in the surface of the feed dogs. Several types of the new feed dogs are now available.

Circle T-32 on Reader-Service Card

Zone-Marking Paint

A zone-marking paint to mark traffic aisles has been developed by Valdura Maintenance Div., American-Marietta Co., 101 E. Ontario St., Chicago 11, Ill. The paint is made in white, yellow, red, and orange. It can be applied with brush, spray, or applicator to brick, concrete, asphalt, wood, creosote blocks, and macadam. A 4-in. line 1,200 ft. long can be covered with 1 gal. of paint. The paint drys in 30 mins. to permit traffic.

Circle T-33 on Reader-Service Card

Roll Covering

A loom pressure-roll covering for use on silk and rayon looms is announced by Mechanical Felt & Textiles Co., Weehawken, N. J. Called Mek-Tek, the covering is strong, uniform in quality and thickness, and is resilient. The spotlessly white covering is 3 ins. wide and comes in 100-ft. rolls.

Circle T-34 on Reader-Service Card

Magnetic Vibrator

The Eriez Mfg. Co., Erie 6, Pa., announces unit vibrators powered by a permanent magnetic unit combined with an electromagnet operating on ordinary a.c. current. The vibrators transmit a rhythmic action to bins, hoppers, or chutes handling dry materials in lump or powdered form and assure free, even flow at all times.

Circle T-35 on Reader-Service Card

Hacksaw Blades

Shatterproof hacksaw blades have been developed by Henry Disston Div., H. K. Porter Co., Inc., Unruh & Milnor Sts., Philadelphia 35, Pa. This safe hand blade is hardened on its tooth edge only. Consequently the body of the blade is flexible to absorb the severest cutting strains without shattering. Standard blade lengths and teeth per inch are available.

Circle T-36 on Reader-Service Card

Tower for Overhead Work

A low-cost 4x4-ft. safety tower for overhead maintenance work is a product of Safway Steel Products, Inc., 6228 W. State St., Milwaukee 13, Wis. Made of high-carbon tubular steel, the rolling tower is designed to safely support loads up to 50 lbs. per sq. ft. The tower rolls from job to job on big positively locking swivel casters and is equipped with a built-in ladder and guard rails.

Circle T-37 on Reader-Service Card

Steam-Cleaning Compounds

Three liquid compounds for use in steam cleaners are being distributed by Hypressure Jenny Div., Homestead Valve Mfg. Co., P. O. Box 348, Coraopolis, Pa. One compound is for medium- and light-duty cleaning, the second is for heavy-duty cleaning, and the third is for cleaning the coils to prevent clogging.

Circle T-38 on Reader-Service Card

Temperature Controls

Automatic temperature controls for large and small jobs have been developed by Sarco Co., Inc., 350 Fifth Ave., New York, N. Y. The system is a simple electric indicating temperature control and provides accuracy within ½° F.

Circle T-39 on Reader-Service Card

Insulating Material

An all-glass thermal insulating material is being sold by Pittsburgh Corning Corp., 1 Gateway Center, Pittsburgh 22, Pa. The insulating material is resistant to moisture, fire, acid, and rot. It is strong, lightweight, and easily cut to size and shape.

Circle T-40 on Reader-Service Card

Bristles for Brushes

Brushes with nylon bristles for power sweepers have been announced by E. I. du Pont de Nemours & Co., Inc., Polychemicals Dept., Wilmington 98, Del. The brushes are said to have stood up under daily use sweeping 12,000 sq. ft. of factory floor space for a period of eight months with less than ⅛-in. wear of the bristle.

Circle T-41 on Reader-Service Card

AMMO

for a barrage of beauty

METALLIC YARNS AND WHEN TO USE THEM

A*listran*
—the viscose metallic yarn.
For yarn dyed, loom finished fabrics. Superb beauty. The most economical yarn engineered specifically for this use. In addition, Alistran gains from 15-20% in yield. Runs supported or unsupported on any loom or knitting machine. Quills magnificently. Runs without fear of breaking because it has almost twice the tensile strength of most metallics.

M*ylar* and foil metallic yarns by Multi-Tex*
For piece dyed fabrics and almost any manufacturing or consumer use.
This extraordinary Du Pont Mylar and foil combination has made butyrate yarns obsolete. It surpasses butyrate in performance with almost the same construction *—yet costs less!*
Resists water, practically all solvents, resists bleaching, mercerizing, and cotton mill vat dyeing processes.
Takes scouring and laundering without a whimper.

M*ylar metalized yarns by Multi-Tex*
For *premium* brilliance and those occasions when the maximum in glinting beauty is demanded
—at prices extraordinary in the yarn industry.

O*rganization* and liaison by Multi-Tex delivers these great yarns and collateral services to you *exactly* when you need them, where you need them!

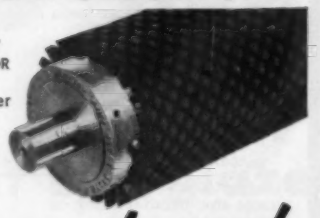
*Du Pont's registered trademark for its polyester film.

For all your metallic yarn needs—
Mylar and foil—Mylar metalized and

ALISTRAN' by
MULTI-TEX
PRODUCTS CORP.
56 ELM ST., NEWARK 5, NEW JERSEY
MARKET 3-1021

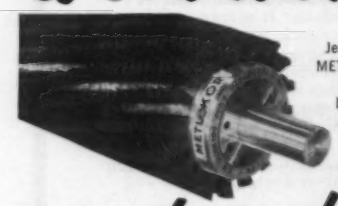
*Reg. U. S. Pat. Off.

"a brush



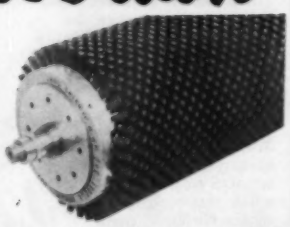
Jenkins' METLKOR Nylon Furnisher Brush

is a brush



Jenkins' METLKOR Nylon Drying Brush

is a brush"



Jenkins' METLKOR Brushing Machine Brush

Poetically speaking, true, but there's no brush like a Jenkins' METLKOR Brush. Textile Mill men everywhere say it's true. There are "Look-Alikes", "Just-as-Goods", "Steals", "Terrific Bargains" but only one Jenkins' METLKOR. They are built better to perform better to last longer. Result . . . Improved product, greater satisfaction and economy.

Specify Jenkins' METLKOR
the original . . . the best *Metal Core* brush

METLKOR®
CYLINDER BRUSHES
and **LIFEWOOD®** WOOD BACKED BRUSHES

M. W. JENKINS' SONS, INC.
— Serving Industry for 80 Years —
431 Pompton Ave., Cedar Grove
Essex County, N. J. • CEnter 9-5150

CONTINUED FROM PAGE 244

Centralized Lubrication

Centralized-lubrication systems that accurately proportion the oil or grease discharged are being made by Trabon Engineering Corp., 1814 E. 40th St., Cleveland 3, Ohio. The correct volume of lubricant is fed to each bearing on a machine.

Circle T-42 on Reader-Service Card

NEMA Frame Motors

Motors in NEMA Frames 182 through 256 v. in 1 to 10 hp. are being manufactured by Wagner Electric Corp., 6400 Plymouth Ave., St. Louis 14, Mo. The motors are in the following design: ribbed frame, fan-cooled; smooth frame, fan-cooled; and smooth frame, nonventilated.

Circle T-43 on Reader-Service Card

Oil for Instruments

A special instrument oil said to be applicable to testing and control instruments in textile plants has been developed by Gulf Oil Corp., Gulf Bldg., 7th Ave. & Grant St., Pittsburgh 30, Pa. The oil is more expensive than conventional lubricating oils but is nonspreading, nongumming, and noncorrosive and resists rust.

Circle T-44 on Reader-Service Card

Improved Lift Truck

A lift truck with automatic transmission is being manufactured by Yale & Towne Mfg. Co., 11,000 Roosevelt Blvd., Philadelphia 15, Pa. The truck is also equipped with inching control. A wide range of capacities from 3,000 to 8,000 lbs. assures a model for most handling needs.

Circle T-45 on Reader-Service Card

Vacuum Cleaner

A 7½-hp. vacuum cleaner, strong enough to pick up nuts, bolts, liquids, sand, metallic litter, or almost any material small enough to pass through the vacuum line, has been developed by Invincible Vacuum Cleaner Mfg. Co., Dover, Ohio. Known as Model 700, the cleaner is mounted on a rubber-tired, ball-bearing swivel-wheel carriage that can be moved easily through narrow aisles.

Circle T-46 on Reader-Service Card

Power Exhauster

A power exhauster designed for roof application is being manufactured by Proctor & Schwartz, Inc., 7th St. & Tabor Rd., Philadelphia 20, Pa. The exhauster employs no belts or pulleys and utilizes a 1½- to 5-hp. electric motor. Exhaustion is blown up and away from the roof.

Circle T-47 on Reader-Service Card

Portable Platform

A portable magnesium platform for use with its Magcoa Yard Ramp for rail-car loading has been announced by Magnesium Co. of America, East Chicago 19, Ind. The average weight of the platform is only 772 lbs. and is available in capacities of 6,000 to 16,000 lbs.

Circle T-48 on Reader-Service Card

Bantam-Size Vibrator

A vibrator for operation on steam or air, called the Vibrolator SAH-10, has been developed by Martin Engineering Co., Neponset, Ill. Weighing only 4 oz., the vibrator is claimed to be the lightest full-powered mechanical vibrator available.

Circle T-49 on Reader-Service Card

Slide Rule

Slide rules made of lightweight metal alloys are available from Pickett & Eckel, Inc., 1109 S. Fremont Ave., Alhambra, Calif. The slide rules are made in 6- and 10-in. standard rules or made to special order. The green-yellow color of these slide rules makes reading of the calibrations easier and cuts down eyestrain.

Circle T-50 on Reader-Service Card

Neoprene for Painting

A liquid neoprene that is applied like paint with a roller, brush, or spray is being made by Gates Engineering Co., P. O. Box 1711, Wilmington, Del. The material provides high corrosion resistance at low cost. It is applied to storage tanks and other metal surfaces subjected to corrosive fumes and weather.

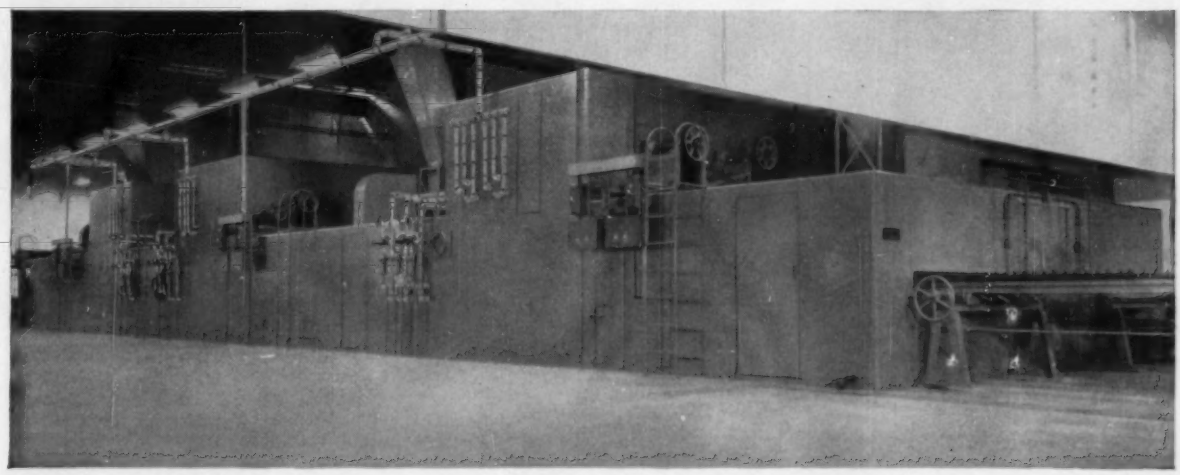
Circle T-51 on Reader-Service Card

CONTINUED ON PAGE 248

Tenter Housing Output

UP 50 TO 150%!

Proctor's duplex air circulation is the answer



The reason why the Proctor Tenter Housing offers the greatest drying capacity per foot of length, lies in the careful design of Proctor's duplex air circulation system. It is the only system that gives absolute uniformity of drying or curing. User experience has actually proven output increases of up to 150% over conventional housings!

The Proctor air circulation system, with its accurate control, has another advantage too. It permits handling of the widest range of fabrics, with the assurance that each will receive exactly the correct treatment.

You cannot afford to overlook a machine that will pay for itself, out of savings, in two years, as shown in actual case histories. Ask for a Proctor engineer to go over your requirements, and judge for yourself the advantages to be gained by the use of this Tenter Housing.

PROCTOR EQUIPMENT FOR THE TEXTILE FIELD

AUTOMATIC BLENDING SYSTEMS • WEIGHING FEEDS • PICKERS • SHREDDERS • BALE BREAKERS • SYNTHETIC CARDS • GARNETTS • DRYERS FOR FIBROUS MATERIAL • YARN DRYERS • HOT AIR SLASHER DRYERS • CLOTH CARBONIZERS • ROLLER DRYERS AND CURERS • LOOPAGERS FOR PRINT GOODS • TENTER HOUSINGS • OPEN-WIDTH BLEACH SYSTEMS FOR WOVEN FABRICS • MULTIPASS AIRLAY DRYERS • NYLON SETTING EQUIPMENT • CON-O-MATIC WASHERS • CONTINUOUS BLEACH SYSTEMS FOR TUBULAR KNITS • EQUIPMENT FOR PRODUCING "REDMANIZED"® SHRUNK-TO-FIT FABRICS • CARPET DRYERS

PROCTOR & SCHWARTZ, Inc.

PHILADELPHIA 20, PA.

Manufacturers of Textile Machinery and Industrial Drying Equipment

Proctor

For more data, write this page number on Reader-Service card. →

DARNELL
CASTERS AND WHEELS

Designed
for use in
the textile industry

..they lead the field in
Performance

RUBBER TREADS . . . a wide choice of treads suited to all types of floors, including Darnelloprene oil, water and chemical-resistant treads, make Darnell Casters and Wheels highly adapted to rough usage.

RUST-PROOFED . . . by zinc plating, Darnell Casters give longer, care-free life wherever water, steam and corroding chemicals are freely used.

LUBRICATION . . . all swivel and wheel bearings are factory packed with a high quality grease that "stands up" under attack by heat and water. Zerk fittings are provided for quick grease-gun lubrication.

STRING GUARDS . . . Even though string and ravelings may wind around the hub, these string guards insure easy rolling at all times.

The full story is yours for the asking—

FREE new MANUAL

DARNELL CORPORATION, LTD.
DOWNEY (LOS ANGELES COUNTY), CALIFORNIA
60 WALKER STREET, NEW YORK 13, NEW YORK
36 NORTH CLINTON STREET, CHICAGO 6, ILLINOIS

CONTINUED FROM PAGE 246

Hydraulic Pump

A hydraulic-pressure exchange pump for handling abrasive and corrosive muds, slurries, and solutions is available from Manton-Gaulin Mfg. Co., Inc., 44 Gordon St., Everett 49, Mass. The pump design eliminates plungers and packing and permanently separates the product being pumped from contact with moving parts. The pump handles corrosive and erosive materials at high temperatures and at pressures to 2,000 psi. and capacities up to 120 gals. per min.

Circle T-52 on Reader-Service Card

Air Meter

The Hastings Model R air meter introduced by Hastings Instrument Co., Hampton, Va., is an instrument for measuring minute air-flow movements. It is used in connection with smog, air pollution, and other applications when extremely small air-flow measurements are necessary.

Circle T-53 on Reader-Service Card

Visible Records

Visible control boards and filing cabinets are being marketed by Acme Visible Records, Inc., Crozet, Va. One new panel has signals that slide back and forth over each other without interference. A personnel in-and-out panel is offered. Another new item is a control panel with pockets to hold 30- and 44-in. cards.

Circle T-54 on Reader-Service Card

Cable Reel

An electric-arc cable reel that unwinds cable to 100 ft. has been developed by United Specialty Corp., P. O. Box 698, El Dorado, Ark. Cable unwinds freely and locks at any desired length; a slight tug releases a locking pawl, and the geared spring retracts the cable. Housing and drum are of cast aluminum. Maximum cable size is 2/0.

Circle T-55 on Reader-Service Card

Drum Warmers

Drum and kettle warmers said to be 50% cheaper than pipe coils are being made by Thermo-Panel Div., Dean Products, Inc., 616 Franklin Ave., Brooklyn 38, N. Y. The units are available in various sizes and shapes and can be used to warm or cool liquids, slurries, soaps, waxes, alkalis, powders, fats, oils, etc. The panels are easy to use and clean.

Circle T-56 on Reader-Service Card

Ear Plugs

For operators troubled by machinery noises, Mine Safety Appliances Co., 201 N. Braddock Ave., Pittsburgh 8, Pa., has made the Ear Defender. The ear plug is made of soft elastromeric material that muffles loud sounds yet permits a certain amount of normal sound, such as the human voice, to be heard.

Circle T-57 on Reader-Service Card

Grease Absorbent

An oil-and-grease absorbent called Hi-Dri is being distributed by Waverly Petroleum Products Co., 1724 Chestnut St., Philadelphia 3, Pa. The material eliminates slippery floors and reduces flash-fire hazard.

Circle T-58 on Reader-Service Card

Cleaners With Motors

Hand-type cleaners with ¾- to 1½-hp. motors are being sold by Ideal Industries, Inc., Sycamore, Ill. The cleaner can be used to blow, vacuum, spray, and dry.

Circle T-59 on Reader-Service Card

Direct-Current Motors

The Kinamatic line of d.c. motors has been announced by General Electric Co., Direct-Current Motor & Generator Dept., Erie, Pa. The motors are available in all ratings and accessories from 1 to 150 hp., and ¾ to 100 kw.

Circle T-60 on Reader-Service Card

Safe Walking

A skidproof coating for steps, catwalks, ramps, and oily floors is distributed by Gates Engineering Co., P. O. Box 1711, Wilmington, Del. To apply the liquid neoprene product, you put on two coats; and while the second coat is still wet, you cover the surface completely with grit. Then a top coat of liquid neoprene is put on.

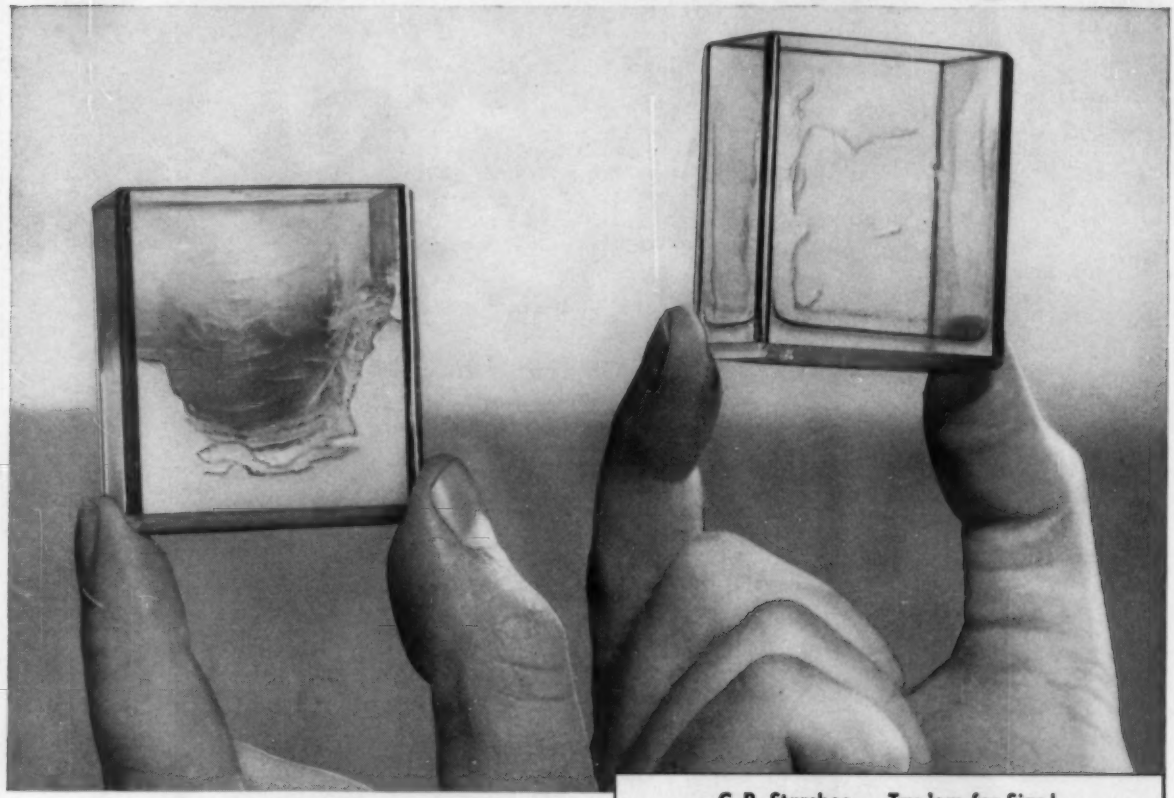
Circle T-61 on Reader-Service Card

Haystack? No indeed! Smart buyers *know* the dependable way to find top-quality needles for felting, knitting, tufting or sewing is by calling . . . **THE TORRINGTON COMPANY.**

Torrington, Conn., U. S. A. Branches in New York, Philadelphia, Boston, Chicago, Greensboro, St. Louis. Pacific Coast Representative: E. G. Paules, Los Angeles

For more data, write this page number on Reader-Service card. →

C.P. Starches...Try 'em for Size



Lack of build-up of Ten-O-Film starch in size box is demonstrated by these chemical test boxes containing (left) ordinary starch and (right) Ten-O-Film respectively.

Solving Tough Slashing and Finishing Problems

TEN-O-FILM®
Starches

C. P. Starches ... Try 'em for Size!

	GLOBE							
	Pearl	Gums	Dextrines	EAGLE	TEN-O-FILM	HERCULES	FLEXIBLE	FOXHEAD
WARP SIZING								
General	*			*				
Synthetics	*	*		*	*	*	*	
Worsteds					*			
Carded Cotton	*							
Combed Cotton				*				
Dyed Yarns					*			
Top Beam Yarns					*			
Denims					*			
FINISHING								
Re-starching	*		*	*	*	*	*	*
Printing	*				*			
Back-filling	*							

If you're not already using TEN-O-FILM Starches, it will pay you to investigate the many advantages offered by this new line:

Ready for use 30 minutes after reaching boil ... needs less softener or plasticizing compound ... size remains stable at slashing temperatures despite prolonged heating and circulating—does not congeal or "skin over" at below-normal temperatures—can be held for reasonable shutdown period without gelation. Film strength, continuity and flexibility promote maximum production, permit lower weave room humidity!

Technical help in utilizing TEN-O-FILM Starches is available without cost or obligation. Ask also about engineering service. Contact your nearest sales office or write direct to:

CORN PRODUCTS SALES COMPANY
17 Battery Place, New York 4, N. Y.

Corn Products makes these famous starches for the Textile Industry:
EAGLE® · FOXHEAD® · GLOBE® · HERCULES · TEN-O-FILM® · GLOBE® Dextrines

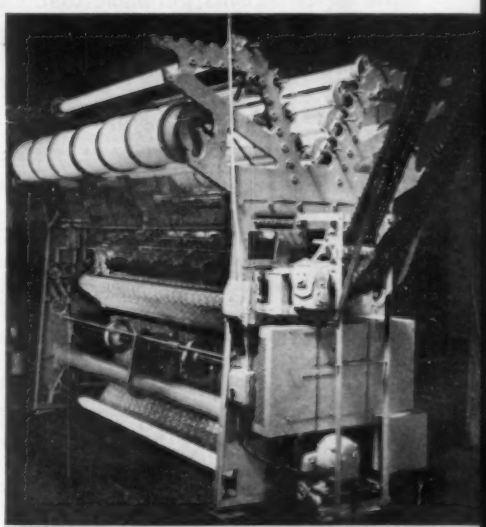
You can see why the NEW KIDDE KNITTER is revolutionizing the lace industry

Look at that lace. It's elaborate, intricate and fine—*much* closer to imported lace than any other made on knitting machines. Ten guide bars on the Kidde Raschel Knitter have made these incredibly beautiful designs possible—and have revolutionized the whole lace industry. The ten guide bars even give you liners to outline the gimp. And consider the speed! — up to 300 courses per minute. It will run with anything from 2 to 10 guide bars and it'll make virtually anything you want from tulle to elastic fabrics. No wonder it's already the most widely used Raschel type machine in the world.

If you specialize in any one of the following fabrics: elastic fabrics, tulle, and various types of net, lace and lace edgings, shoe cloth, laundry nets, sport shirtings or underwear fabric, or if you need versatility encompassing many of these types, the Kidde Raschel Type Knitter can give you faster, more economical, more dependable production.

SEND FOR FABRIC SAMPLES

We will gladly send you swatches of fabric and complete information on the range, speed and quality of production possible on the Kidde Knitter. Write today for details to Department KLG1.



The new Kidde 10-bar Raschel Knitter

TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS • BEAMERS
CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS • TENSION COMPENSATORS

Kidde MANUFACTURING CO., INC. — 42 FARRAND STREET — BLOOMFIELD, NEW JERSEY

SOUTHERN OFFICE — 267 W. MAIN ST., GASTONIA, N. C.

The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.

CROMPTON RICHMOND COMPANY INCORPORATED FACTORS

Never An Ill Wind

No matter which way the economic wind blows, Crompton Factoring is a sound cushion.

In good times it means faster capital turnover by turning receivables into cash when more business demands more liquid working capital on a daily basis.

In recessions Crompton means an ample bank balance so that you are always ready to make the advantageous purchase that will average down your own inventories and enable you to sell profitably at a lower price.

Thus, you are never hampered for cash. And it is an economical service of equal interest to large and small concerns. Quick action — and we relieve you of all credit chores and risks.

CROMPTON COMPANY 1807 1957 150th ANNIVERSARY

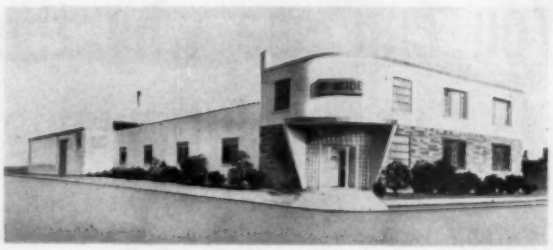
The Human Factor

CROMPTON-RICHMOND CO., INC.
1071 Avenue of the Americas, New York 18

Crompton-Richmond-Joel Hurt Co.
Glenn Building, Atlanta 1, Georgia

NEWS ABOUT SUPPLIERS

ACME STEEL CO., Chicago, Ill.—Has appointed Fred T. Ehlert as superintendent of the Yards and Services Div. and William E. Schultz as superintendent of the Shipping and Warehouse Dept. . . . **AIR REDUCTION CHEMICAL CO., DIV. OF AIR REDUCTION CO., INC.**, New York, N. Y.—Will build a methyl butynol plant at Calvert City, Ky. . . . **AIR REDUCTION SALES CO., DIV. OF AIR REDUCTION CO., INC.**, New York, N. Y.—Will build a multimillion-dollar air-liquidation plant for the production of liquid oxygen, nitrogen, and argon at Alton, Mass. . . . **AMERICAN ENKA CORP.**, New York, N. Y.—Has announced that D. Crawford Smith, Jr., has joined the Rayon Sales Dept. James T. Haigler, formerly a technical service representative of Enka's Mfg. Div., will join the South Central district sales staff. . . . **ARNOLD, HOFFMAN & CO., INC.**, Providence, R. I.—Has announced that Alan Mayer will be in charge of market development of new products intended for use by industries outside the textile field, with headquarters in Providence, R. I. . . . **ASKANIA REGULATOR CO.**, Chicago, Ill.—Has appointed G. L. Stancliff, Jr., as vice-president and general chairman.



EDWARD J. McBRIDE CO., Philadelphia, Pa., has completed the addition of new manufacturing facilities that more than double capacity. The new manufacturing area of 10,000 sq. ft. with expanded production facilities is shown on the left at the rear of the building.

BECCO CHEMICAL DIV., FOOD MACHINERY & CHEMICAL CORP., Buffalo, N. Y.—Has promoted John R. Hopkins to technical assistant to the sales manager. Norbert Weinberg has been promoted to assistant to the manager of textile research and development. . . . **BORDEN CO., CHEMICAL DIV.**, Coatings and Adhesives Dept., New York, N. Y.—Has announced that Vincent D. Nutile and Joseph H. Koslowski have joined the company as technical sales representatives.

CELANESE CORP. OF AMERICA, New York, N. Y.—Has appointed Samuel B. McFarlane as manager of the Fiber Research Dept. at the Research Laboratory, Summit, N. J. . . . **CHEMSTRAND CORP.**, New York, N. Y.—Has named Michael J. Koroskys as market-research analyst. Mr. Koroskys will prepare studies of the markets for the company's present and potential products. . . . **CLARK EQUIPMENT CO.**, Battle Creek, Mich.—Has appointed J. A. Kraats Corp., Pawtucket, R. I., to sell and service the fork lift trucks, straddle carriers, and powered hand trucks produced by the Industrial Truck Div. . . . **CLEVELAND CRANE & ENGINEERING CO.**, Wickliffe, Ohio—Has appointed John G. Frishorn as assistant sales manager of the Cleveland Tramrail Div. . . . **COMMERCIAL FACTORS CORP.**, New York, N. Y.—Has announced that the company will move into larger quarters at 1 Park Ave. later this year. . . . **CONTINENTAL CAN CO.**, New York, N. Y.—Has appointed Hoke S. Robinson of Robinson Textile Co. as sales representa-

Like a claw, Dow chelating agents firmly grasp and hold metal ions in solution, preventing them from undergoing the usual chemical reactions. But why so many Versene products? Are they effective on all metallic ions? We hope this continued discussion provides the answers, and further clarifies what chelates will do—and won't do.

DOW

The Chemistry of Chelation: Part III

Specific agents for specific conditions · Caustic solutions Changing solutions · Industry responds

In all, Dow offers 15 commercially available chelation products. These are grouped in the Versene®, Versenol®, and iron specialty (Versene Fe-3 Specific®, Versene T®, Versene S) series. The Versene and Versenol series were discussed in Part II of this advertisement. When used in solution, the Versene products inactivate practically any polyvalent metallic ion they contact. They accomplish this by actually forming a new compound in which the metal ion becomes a member of a stable inner ring structure in the molecule, so that no reversion or breakdown can occur. However, no one chelating agent can complex all metal ions under all conditions. One of the major considerations determining which chelating agent to use is pH. To illustrate, let's look at iron-containing systems, among the most troublesome for chemical processors.

SPECIFIC AGENTS FOR SPECIFIC CONDITIONS

The first amino acid type chelate made commercially available was Versene, the tetrasodium salt of EDTA*. It is the most versatile member of the series for it ties up most polyvalent metal ions throughout the pH range—with this notable exception: It is excellent for complexing iron in the acid range only. For economy above pH 7, we must look to a later development, Versene Fe-3 Specific.

The most effective and efficient agent known for complexing iron in the mildly alkaline pH range, Versene Fe-3 Specific also chelates copper, nickel, and cobalt—but has no effect on calcium, magnesium or other common non-transition metal ions. Where calcium and magnesium along with iron cause difficulty in alkaline solutions, a blend of Versene and Versene Fe-3 Specific is the answer. This mixture, called Versene Fe-3, complexes all of these troublesome ions. Its Versene Fe-3 Specific content is sufficient so as to automatically take care of the quantity of iron normally encountered in hard water.

Versene Fe-3 is also considered an important adjunct to the polymerization of synthetic rubber. It controls the concentration of the iron ions catalyzing the reaction, thus insuring a more-uniform, higher-quality end product.

CAUSTIC SOLUTIONS

For chelating iron in caustic solution, another agent enters the picture—Versene T. This material ties up iron in a wide range of caustic solution concentrations. It also complexes calcium, magnesium, nickel, cobalt, and other metal ions—throughout the normal pH range as well as in caustic solutions. In the presence of a suitable reducing agent, Versene T functions effectively as a rust remover—and without the drawbacks of acid cleaners. Versene T thus finds widespread use in boiler and heat exchanger cleaning, textile processing, etc.

Another effective chelating agent that is selective for iron in the free caustic pH range is Versene S. Since it will not chelate alkaline earth ions, Versene S is especially suitable for use in silicate-lined textile processing kiers.

CHANGING SOLUTIONS

In special instances where a processing solution is strongly alkaline at first, then changes to neutral or to acidic, iron can be controlled with a mixture of Versene T and Versene Fe-3 Specific. In this combination, the Versene T component complexes the iron when the solution is caustic. As the pH drops, Versene Fe-3 Specific takes over.

INDUSTRY RESPONDS

Every day, Dow chelates are finding new and expanding usage —in textile manufacturing and rubber processing, in soaps, synthetic detergents, cosmetics, and pharmaceuticals. Their ability to control ionic concentrations, to eliminate product breakdown, to smooth out production and save money, has brought enthusiastic response from industry. That they are solving a multitude of processing problems is true. But chelates are no cure-all. To uncover their profitable uses, we will help in any way we can. Write us on your company letterhead for application data and technical assistance. Technical Service and Development, Department SC-913K-2, THE DOW CHEMICAL COMPANY, Midland, Michigan.

*Ethylenediaminetetraacetic acid

THE NEXT TOPIC IN THIS SERIES

PART IV *October* — Applications in specific industries (formulation of alkaline cleansers—stabilization of hydrogen peroxide and kier boiling in textile processing—uniform control of trace metal catalysts in polymerization of synthetic rubber—other industrial applications).

YOU CAN DEPEND ON DOW

For more data, write this page number on Reader-Service card. →

New!

Oakite solvent cleaner #117 removes lint, oil, smut from

LOOMS **TWISTERS**
MOTORS **REED PARTS**

Brush it on or spray it ... blow it off or wipe it ... Oakite 117 removes every trace of soil from textile equipment – quickly, safely, economically. Fast dry-down, high flash point, the perfect solvent for textile mills. Write for details to Oakite Products, Inc., 42 Rector Street, New York 6, N.Y.

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS · METHODS · SERVICE
SCIENCE

Export Division Cable Address: Oakite

Technical Service Representatives in Principal Cities of U. S. and Canada

HOW HERBERT OXY COLD BARS WILL HELP YOU!

By eliminating static on your equipment—warpers, cards, plaiters, creels, printers, etc. . . . your production becomes smoother, quality improved . . . eliminates ballooning of sliver, clinging to cans and permits smoother, better warps.

The Oxy Cold Bar works equally well on all types of materials, Nylon, Dacron, Orlon, Acetate, Rayon, Raw Silk, Wool, etc. It operates electrically with absolute safety. It is compact and easily installed at the trouble spot.

Send us specifications of your equipment for full information and proposal.

HERBERT PRODUCTS INC.
74-34 JAMAICA AVENUE, WOODHAVEN 21, NEW YORK
4070

tive for its Conomet metallic yarns. . . . **CURTIS & MARBLE MACHINE CO.**, Worcester, Mass.–Has acquired the textile-machinery business of Hermas Machine Co., Hawthorne, N. J.

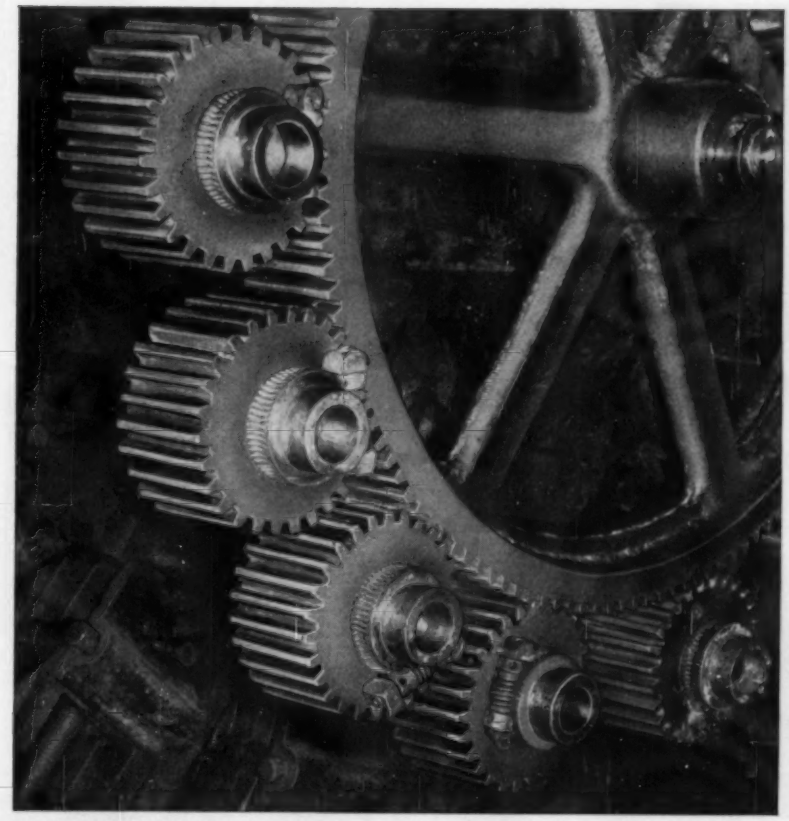
DEXTER CHEMICAL CORP., Bronx, N. Y.–Has acquired a two-story stone building for the manufacture of thermosetting resins for the textile industry. . . . **DIAMOND ALKALI CO.**, Cleveland, Ohio–Has announced that Olin Smith will become branch manager of the Philadelphia office and Robert R. Wood will become assistant branch sales manager. Both appointments will become effective Oct. 1, when C. F. Wolters, Jr., retires.

E. I. DU PONT DE NEMOURS & CO., INC., Wilmington, Del.–Has started construction on a fifth laboratory building at the company's center for sales-service research at Chestnut Run, near Wilmington. . . . **DOW CHEMICAL CO.**, Midland, Mich.–Has purchased half interest in Sales y Alcolis, S. A., a Mexican concern situated near Coatzacoalcos. . . . **DRAPER CORP.**, Hopedale, Mass.–Has announced that plans have been made to transfer the operations of Hemphill Co., Pawtucket, R. I., to Norristown, Pa., where Wildman Jacquard is located.

ELMO INTERNATIONAL, North Bergen, N. J.–Has been appointed exclusive sales agent here for Comerio Ercole, S. P. A., of Busto Arsizio, Italy. . . . **EMERY INDUSTRIES, INC.**, Cincinnati, Ohio–Has announced the formation of a wholly owned subsidiary, Emery Industries (Canada) Ltd. The new company will produce textile chemicals, Sanitone dry-cleaning compounds and other products. . . . **NORBERT W. ENSLEN CO.**, Milwaukee, Wis.–Has been appointed manufacturer's representative for the sale of Cleaver-Brooks boiler equipment.

WILLIAM H. POOLE (left) has been named sales manager of textile finishing equipment for Proctor & Schwartz, Inc., Philadelphia, Pa. C. W. SCHWARTZ, 4th, (center) has been named sales manager of textile machinery for Proctor & Schwartz, Inc. HOWARD R. WALKER (right) has joined Dow Chemical Co., Midland, Mich. He will head up the dyeing and finishing group in the recently formed textile-fibers department of the company.

FOSTER MACHINE CO., Westfield, Mass.–Has announced that Jackson A. Moore has rejoined the company as project engineer. . . . **GEIGY CHEMICAL CORP.**, Ardsley, N. Y.–Has announced that Aula Chemicals, Inc., Elizabeth, N. J., has been purchased by a new corporation affiliated with Geigy. . . . **GENERAL ANILINE & FILM CORP.**, New York, N. Y.–Has announced that Dr. Robert E. Brouillard has been named assistant manager of the Pigment Div. and Emil A. Wick has been named manager of the Pigment Technical Dept. of the Dyestuff and Chemical Div. . . . **GOODYEAR TIRE & RUBBER CO.**, Akron, Ohio–Has appointed Philip R. Percich assistant manager of the hose sales department. . . . **HEYDEN NEWPORT CHEMICAL CORP.**, New York, N. Y.–Has appointed James J. Slattery as sales manager of Newport Industries Co. . . . **KOPPERS CO., INC.**, Pittsburgh, Pa.–Announced plans for increasing its dye business by integrating its wholly owned subsidiary, American Aniline Products, with the Chemical Div. of Koppers. . . . **LINK-BELT CO.**, Chicago, Ill.–Will built a new $5-million bearing plant in Indianapolis. . . . **MILLPRINT, INC.**,



REDUCE WEAR on large metal gears and reduce noise in textile printing machines with the use of C-D-F Celoron plastic gears. Prior to this use of Celoron, metal gears had to be replaced after one to two months' operations. Since installing nine C-D-F Celoron gears over a year ago, there has been no wear on the main gear, no replacement of the C-D-F Celoron gears.

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LOWER mill operating COSTS by wider use of C-D-F plastics

Reduce wear and noise, eliminate corrosion, increase machine efficiency, save materials. That's what these four examples of C-D-F plastics can do for your mill. C-D-F is a leading manufacturer of vulcanized fibre, the long-life material that goes into Diamond Fibre Roving Cans which are famous for quality and their seamless uniformity. C-D-F has years of experience in selling the textile industry, has established its southern headquarters in Spartanburg, S. C. Reasonable prices, superior quality, fast service are part of every order placed with the friendly C-D-F textile sales engineer. If lowering mill operating costs is your responsibility, C-D-F . . . a big reliable source of supply . . . helps you with a complete line of textile industry plastics.

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BOARDS—examining
BOBBINS
BLADES—separator
BOXES—battery filling
bobbin
conditioning
doff
mill
quill
spooler
tote
BUSHINGS—binder
CAMS
CANS—roving waste
COUPLINGS
COVERS
spinning bucket
GEARS—auxiliary
card
coiler head
fitting
motor pinion
quill
picker
spinner
spooler
GUIDES—knife
PICKER—stick parts
PINS—binder
PIRNS
PLATES—lay
PLUGS—parallel
POT—eyes
PULLEYS
RECEPTACLES
ROLLS—lap
ROLLERS
SEPARATORS
SHEETS—bin lining
SHUTTLE PARTS
TABS—binder
TRACK—tenter frame
TRUCKS—cloth
conditioning
doff
filling
quill
spinning
spooler
twisting
waste
winding
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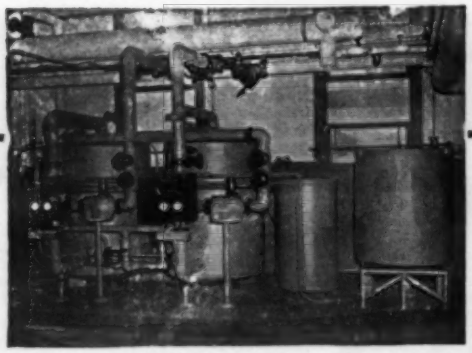

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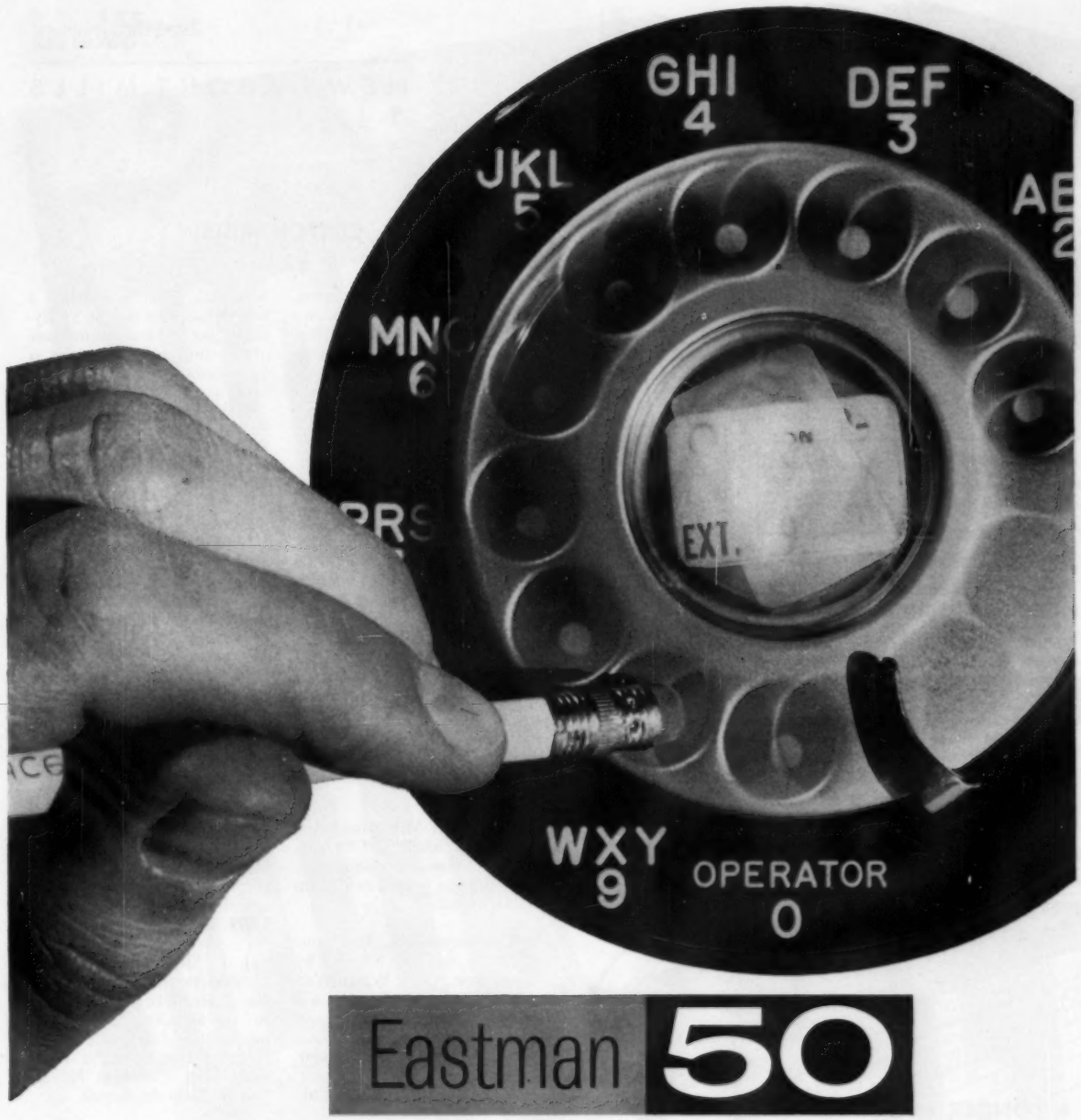
manufacture and measurement for mankind

Milwaukee, Wis.—Has appointed Albert Riloff to the sales staff, representing Milprint in the Boston area. . . . **MILLMASTER CHEMICAL CORP.**, New York, N. Y.—Has undertaken the sale of glycerine as representative of the industrial chemical sales department of Lever Bros., New York, N. Y.

NATIONAL STARCH PRODUCTS, New York, N. Y.—Has announced that John D. Beggs, sales manager of the National Resin Div., has moved to Los Angeles. **OWENS-CORNING FIBERGLAS CORP.**, Toledo, Ohio—Has appointed Cadillac Plastic & Chemical Co., Detroit, Mich., as a distributor of Fiberglas reinforcing materials. **PROCTOR & SCHWARTZ, INC.**, Philadelphia, Pa.—Has announced the retirement of three of its sales personnel: John H. Senior, vice president; Warren A. Dickinson, Sr., sales manager for the textile and veneer industries; and Thomas J. Wilson, Sr., sales engineer in Chicago. . . . **SARAN YARNS CO.**, Odenton, Maryland—Has appointed The Hall Co., Larchmont, N. Y., as exclusive agent for the sale of saran staple and tow in the U.S. . . . **SCOTT & WILLIAMS, INC.**, Laconia, N. H.—Has elected Harold G. Kellert assistant vice president of sales. . . . **SOUTHEASTERN LOOM & MACHINE WORKS, DIV. OF ABNEY MILLS**, Greenville, S. C.—Has completed its move from Greenville, S. C., to a new one-story plant at Greenwood. . . . **SUN CHEMICAL CORP., WARWICK CHEMICAL DIV.**, Long Island City, N. Y.—Has signed a license agreement with Dow Corning Corp. for using the Syl-mer name and trademark and authorizing like privileges among the finishers, converters, mills, and manufacturers with whom it normally does business.

DR. JAMES D. ALEXANDER (left) has joined the staff of Celanese Corp. of America's textile development laboratories at Charlotte, N. C., and is assigned to the Applications and Product Development Dept. staff. ROBERT MERCER (center) has been promoted to district manager of the west coast region for Lamson Mobilift Corp., Portland, Ore. DR. COLIN L. BROWNE (right) a textile-development chemist, has also joined the staff of Celanese Corp. of America and is assigned to the same department as Dr. Alexander.

U. S. STEEL CORP., New York, N. Y.—Has appointed Howard J. Mullin assistant vice president of Sales and Distribution. J. M. Curto will succeed Mr. Mullin as manager of sales of the New York district sales office. . . . **WESTVACO CHLOR-ALKALI DIV., FOOD MACHINERY & CHEMICAL CORP.**, South Charleston, West Va.—Has started a major solvent expension program. The expansion involves carbon bisulfide and carbon tetrachloride. . . . **WORTHINGTON CORP., AIR CONDITIONING & REFRIGERATION DIV.**, Harrison, N. J.—Has announced the establishment of a new internal sales organization to handle Worthington air conditioning and refrigeration business through franchised outlets. . . . **WYANDOTTE CHEMICALS CORP., MICHIGAN ALKALI DIV.**, Wyandotte, Mich.—Has established two new sales offices in the South. Roger Moister has been appointed manager for the Southeastern district and Scott Starkey has been named manager for the Southwestern district. The company also announced that a new plant in Wyandotte, scheduled for construction late this year, will be known as the oxide-products plant.



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Eastman 50 comes in bright and dull luster Estron® and in Chromspun® black. Same deniers, twists, put-ups and price as regular Eastman acetate yarns. Ask your nearest Eastman representative.

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NEWS ABOUT MILLS

COTTON MILLS

Bibb Mfg. Co., Columbus, Ga., is having 464 deliveries changed over to Ideal Feathertouch drawing, in addition to 56 Feathertouch deliveries previously installed.

Catawba Cotton Batting Co. is locating in Claremont, N. C., to produce cotton batting for upholstered furniture.

Cone Mills Corp., Greensboro, N. C., and Cortley Fabrics Co., Inc., have announced that Cone is acquiring controlling interest in Cortley Fabrics and its affiliates, Clarion Textile Corp. and Careloom Cotton, Inc. Cone Mills becomes sole selling agents for Harmony Grove Mills, Inc., Commerce, Ga., and Strickland Cotton Mills, Inc., Valdosta, Ga. Both mills are manufacturers of gray sheetings, drills, twills, and sateens.

Dan River Mills, Inc., Alabama Div., has moved its manufacturing and administrative headquarters from Birmingham to Montgomery.

Hockmeyer Bros., Inc., Lowell, Mass., has been acquired by Crompton Co., West Warwick, R. I. Hockmeyer will continue to operate as a separate concern, and Victor Hockmeyer will remain as president.

Montreal Cottons Ltd., Montreal, Que. will build a new cotton-yarn mill at Valleyfield, Que. The estimated cost of the mill and equipment is $5-million.

Joan Plush Mills, Woonsocket, R. I., has purchased the Lowell weaving and finishing mill of Massachusetts Mohair Plush Co., Inc.

Massapoag Mills Corp., Lincolnton, N. C., has ceased operation and future plans are indefinite.

Reeves Bros., New York, N. Y., has purchased Fairmont Mills, Fairmont, S. C. The mill will make plastic textile yarns and fabrics.

Springs Cotton Mills' Eureka Plant, Chester, S. C., will begin an expansion program that will cost over $2-million. The present weave room will be doubled, and space will be provided for more preparatory machinery in two additions to the mill. The plant presently operates 76,000 spindles and 1,071 looms.

J. P. Stevens & Co., Inc., is converting its Roanoke Mill No. 2, Roanoke Rapids, N. C., to an all-ticking mill. The production of furniture fabrics is being transferred to Rosemary Mfg. Co. Mill No. 2, also in Roanoke Rapids.

WOOLEN AND WORSTED MILLS

Abbott Worsted Co., Seneca, S. C., has announced that about $250,000 in new equipment has already been installed and a considerable amount will be spent on further improvements. All present long-draft spinning frames are being equipped with Pneumafil.

A. & M. Karagheusian, Inc., Freehold, N. J. has purchased a new plant at Aberdeen, N. C., from Amerotron Corp. The velvet-weaving department of Karagheusian at Freehold and the yarn-manufacturing equipment from Karagheusian's Roselle Park, N. J., plant will move to the Aberdeen mill.

Peerless Woolen Mills, Rossville, Ga., has purchased a mill in Tilton, Ga., from Edward Krock Industries, Inc.

"Know" Men are Better Than "Yes" Men

Slashing problems can be as stubborn as burrs in a cocker's tail. It takes more than pat answers to solve them.

That's why Keever sales-service men are trained for the job, and on the job. Each is qualified to work closely with you right in your plant.

Specific mill problems are discussed in general staff meetings with other contact associates having combined experience of more than 120 years.

And behind this group are some 40 other textile engineers, chemists and technicians who serve as "know" men for Keever starches. Count on them to help you.

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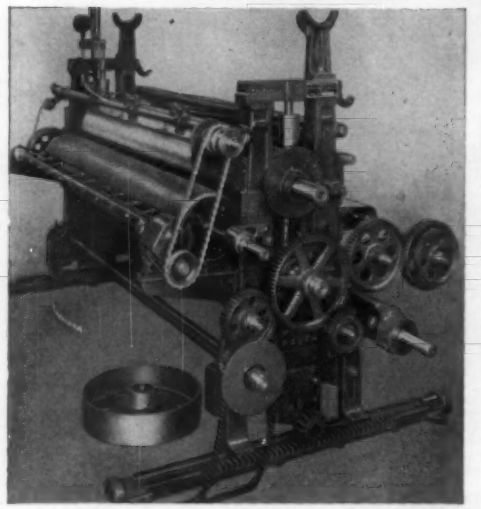

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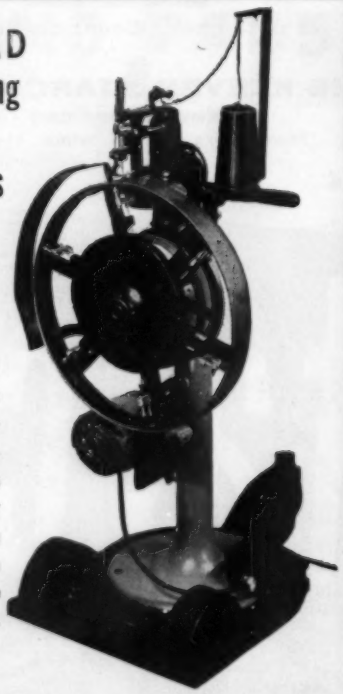

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SYNTHETICS MILLS

Fieldcrest Mills, Inc., Spray, N. C., will discontinue the manufacture of novelty fabrics and will close the Synthetic Fabrics Mill. The company has no plans at the present time for other manufacturing operations in the Synthetic Mill building.

Gustin-Bacon Mfg. Co. has bought a new automatic weighing tandem-feed arrangement from W. D. Dodenhoff Co.

J. B. Martin Co., Leesville, S. C., has completed a new plant to produce narrow fabrics and velvets.

KNITTING MILLS

Alba Hosiery Co., Valdese, N. C., has bought the name and inventory of Roman Stripe Hosiery Co., Easton, Pa.

Argo Knitting Mill & Bleachery, Schuylkill Haven, Pa., was destroyed by fire causing an estimated damage of $175,000.

Bachelor's Friend Hosiery Co., Inc., Hickory, N. C., has been incorporated with authorized capital stock of $100,000.

Boston Knitting Mills, Inc., Newton, Mass., is moving its plant to Cohoes and Troy, N. Y., into larger quarters.

Botany Mills, Inc., Passaic, N. J., has acquired Premier Knitting Co., Inc., Blackwood, N. J., and its affiliated companies. Premier will continue operations without change in management or policies

Chesterfield Hosiery Mill, Chesterfield, S. C., has leased a building at Ruby, S. C., for establishment of a subsidiary, Jewel City Hosiery Mill.

Ellisville Hosiery Mills, Inc., Ellisville, Miss., has installed new knitting machines.

Harriss & Covington Hosiery Mills, Inc., High Point, N. C., has purchased Wilkes Hosiery Mills Co., North Wilkesboro, N. C.

Highland Knitting Co., Springfield, Mass., has been purchased by Lawson Products, Inc., Pawtucket, R. I.

Maiden Hosiery Mills, Hickory, N. C., has been incorporated with an authorized capital of $100,000.

Scottsboro Hosiery Co., Scottsboro, Ala., subsidiary of Burlington Industries, is the new name for the former Scottsboro Plant.

Sweetree Mills, Inc., Cherryville, N. C., has been incorporated with an authorized capital of $200,000 for the manufacture of knit goods.

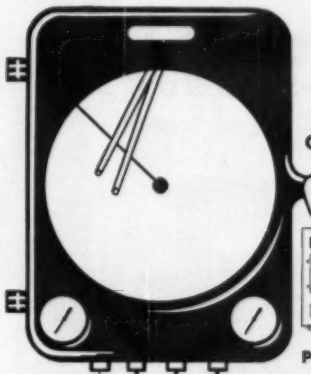
Van Raalte Hosiery Co., Murphy, N. C., has closed.

DYEING AND FINISHING PLANTS

Adirondack Dyeing & Finishing Corp., Johnstown, N. Y., has been organized by Max Fowler of St. Johnsville and has taken a long-term lease on Triangle Finishing Corp., Johnstown, and its equipment.

Harodite Finishing Co., Inc., North Dighton, R. I., is now occupying a one-story building in Taunton, Mass. It will be utilized as a warehouse, storage, and distribution facility for customers' finished goods.

Phoenix Hosiery Co., Milwaukee, Wis., has sold a 200-sq.-ft. building to Rhea Manufacturing Co., a women's-wear manufacturer.



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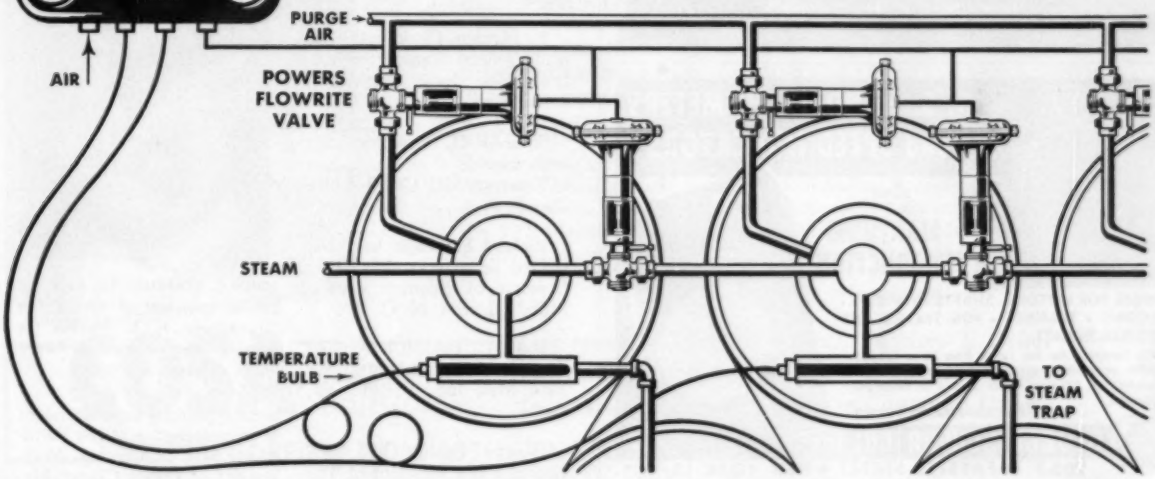

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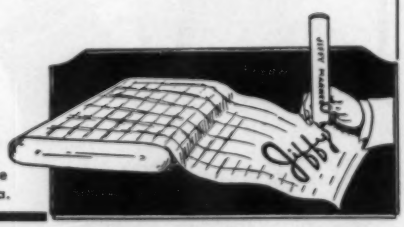

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Caldwell TANKS AND TOWERS

NEWS ABOUT MEN

R. F. Brooks has been named vice president of P. H. Hanes Knitting Co., Winston-Salem, N. C.

P. Hayden Clark has been made general manager of Talbot Mills, Inc., North Billerica, Mass.

Shearod H. Crumpler has been elected a vice president of Rosemary Mfg. Co., Roanoke Rapids, N. C.

Richard F. Elliott has been elected secretary and assistant treasurer of Edenton Cotton Mills, Edenton, N. C.

James C. English has joined the sales force of Huntington Yarn Mill, Inc., Philadelphia, Pa.

Warner Eustice has been elected a vice president of The Kendall Co., Walpole, Mass.

William G. Fash has been named director of research and product development at Bates Mfg. Co., Lewiston, Me.

L. K. Fitzgerald has joined the cotton merchandising division of J. P. Stevens & Co., Inc., New York, N. Y., in an executive capacity.

Wm. Max Fowler has been elected president and treasurer of the newly formed Adirondack Finishing Corp., Johnstown, N. Y.

Edward W. Galinat has been named manager of Rocky River Mills, Bigelow-Sanford Carpet Co., Calhoun Falls, S. C.

W. A. Goodwin has been named manager of the Machias Mill of Deering, Milliken & Co., Inc., Machias, Me.

John D. Green has been promoted to membership on the executive committee of P. H. Hanes Knitting Co., Winston-Salem, N. C.

Glenn Hall has been named superintendent of the synthetics division of Pharr Worsted Mills, McAdenville, N. C.

Prescott W. Harris, Jr., has been appointed superintendent of manufacturing at the Farnsworth Mill of Deering, Milliken & Co., Lisbon Center, Me.

JOHN C. STANDISH has been appointed president of Albany Felt Co., Albany, N. Y. He fills the vacancy created by the recent death of Lewis R. Parker.

Virgil Harris has joined the staff of Rockford Textile Mills, McMinnville, Tenn., as superintendent of yarn production.

Woodrow W. Harris has been named general overseer of spinning at the Lynchburg Div., Bates Industries, Inc., Lynchburg, Va.

Max Hesse has been appointed a vice president of Burlington Narrow Fabrics Co., New York, N. Y.

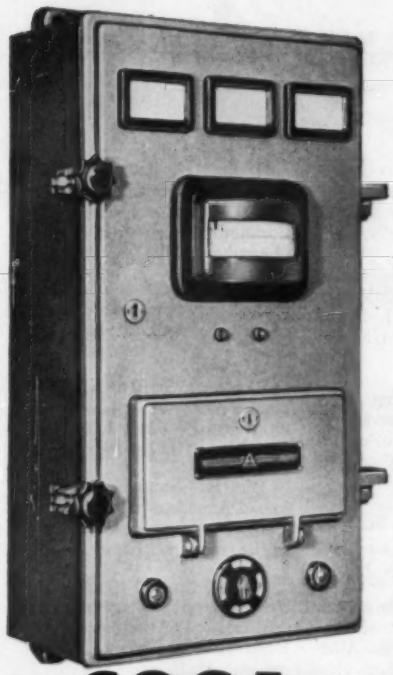
Thomas W. Houser will be representative in the Southwestern states for Adams Millis Corp., High Point, N. C.

J. W. Jelks has been appointed director of industrial relations for J. P. Stevens & Co., Greenville, S. C.

I. Lewis Langley has been named vice president and a director of Bates Industries, Inc., Lynchburg, Va.

Sol J. Levy has been elected to chairman of the board of Hansley Mills, Inc., Paris, Ky.

Herbert A. Leslie has been elected treasurer of Iselin-Jefferson Co., New York, New York.



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Provides Instant Correction Without Overcompensation

Completely dependable accuracy in the automatic moisture control of all textile dryers and slashers is now possible with the Mahlo TEXTOMETER. Machine speed responds instantly to the slightest change in moisture percentage—desired degree of dryness is always exactly correct. Overdrying is prevented. By permitting high machine speeds the TEXTOMETER provides increased production, more efficient steam consumption and power utilization.

Electrodes, in the form of roller or feeler contacts, transfer conductivity readings from the fabric to the TEXTOMETER which indicates them in moisture values. Any deviation from desired moisture content is quickly and automatically corrected by signals sent from the TEXTOMETER to a speed-control pilot motor. Differences in weight, thread count or yarn number of the material will not affect readings. Automatic control may be blocked off during shut-down or low speed periods. Since it is also available without the Automatic Control Unit, the TEXTOMETER has a scale calibrated in moisture % and colored signal lights which indicate "dry," "normal" or "moist" conditions.

Write for complete information

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Lay-on-air & Tenter Dryers, Padders & Other Finishing Mach. · Spindles · Roller Bearing Inserts · Automatic Moisture Control & Others

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ALLEN

Kiers, Top Dyeing Machines Special Bleaching Equipment

Textile mills now using, or seeking to purchase Allen Dyeing and Bleaching Equipment will welcome the announcement that all Allen products are now being manufactured by O. G. Kelley and Company of Boston, Mass., with William Allen Son's Company, the former owners, acting as engineering consultants and sales representatives.

With its tremendous facilities and long experience in the metal fabricating field, O. G. Kelley and Company, working closely with ALLEN engineers according to ALLEN drawings and specifications, is well equipped to supply you with the finest in bleaching and dyeing equipment.

REPAIR PARTS

Repair and replacement parts, precision built specifically to fit your ALLEN equipment, are now available or can be specially made for prompt delivery.

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NEWS ABOUT MEN Continued

Edward Loeb has been appointed the New York City representative for Austin Knitting Mills, Albemarle, N. C.

E. E. Madrey has been promoted to secretary and assistant treasurer of P. H. Hanes Knitting Co., Winston-Salem, N. C.

Calvin Michaels has been named personnel supervisor at the Modena Plant, Burlington Industries, Inc., Gastonia, N. C.

Leon E. Moody has been appointed manager of Dublin Finishing Co., Dublin, Va.

Erskine Purser has been named superintendent of Austin Knitting Mills, Inc., Albemarle, N. C.

Herman D. Ruhm, Jr., has resigned as president and member of the board of directors of Burlington Industries, Inc., Greensboro, N. C.

Ade Schumacker has been elected president and a director of Firth Carpet Co., Firthcliffe, N. Y.

Richard J. Steffens has been named executive vice president of Wilton Woolen Co., Wilton, Me.

W. R. Steppe, Jr., has joined American Thread Co. as assistant to the general manager of the company's Georgia mills.

Henry Studsill has been elected secretary-treasurer of Alabama Textile Products Corp. and the Andala Co., Andalusia, Ala.

Textile World

OBITUARY

F. Eugene Banfield, 71, former vice president and director of Whitin Machine Works, Whitinsville, Mass.

Leon G. Boghossian, 62, plant superintendent, Concordia Mfg. Co., Inc., Central Falls, R. I.

Leon J. Brandt, Jr., 43, president of Martha Mills, Asheboro, N. C.

Raymond G. Buser, 75, founder and president of R. G. Buser Silk Corp., Paterson, N. J.

Frank Cheney, Jr., 96, former president and chairman of Cheney Bros., Manchester, Conn.

Jeremiah J. Foley, 73, export sales manager of Whitin Machine Works, Whitinsville, Mass.

William Fraser, 77, director of J. P. Stevens & Co., New York, N. Y.

Harold A. Green, 42, assistant superintendent of Eagle & Phenix Div., Fairforest Co., Columbus, Ga.

Walter E. Hadley, 76, retired superintendent of Standard-Coosa-Thatcher, Chattanooga, Tenn., and first national secretary of AATCC.

Edwin Hays, 61, head of gray-goods sales for Bates Fabrics, Inc., Lewiston, Me.

Max G. Johl, 56, retired president of Max Pollack & Co., Inc., Groton, Conn.

Herman D. Ruhm, 83, former president of Niagara Alkali Co., New York, N. Y.

Clarence S. Siegfried, 75, president of Deisher Knitting Mills, Kutztown, Pa.

William Brent Vivian, 74, retired manager of American Viscose Corp., Nitro, W. Va.

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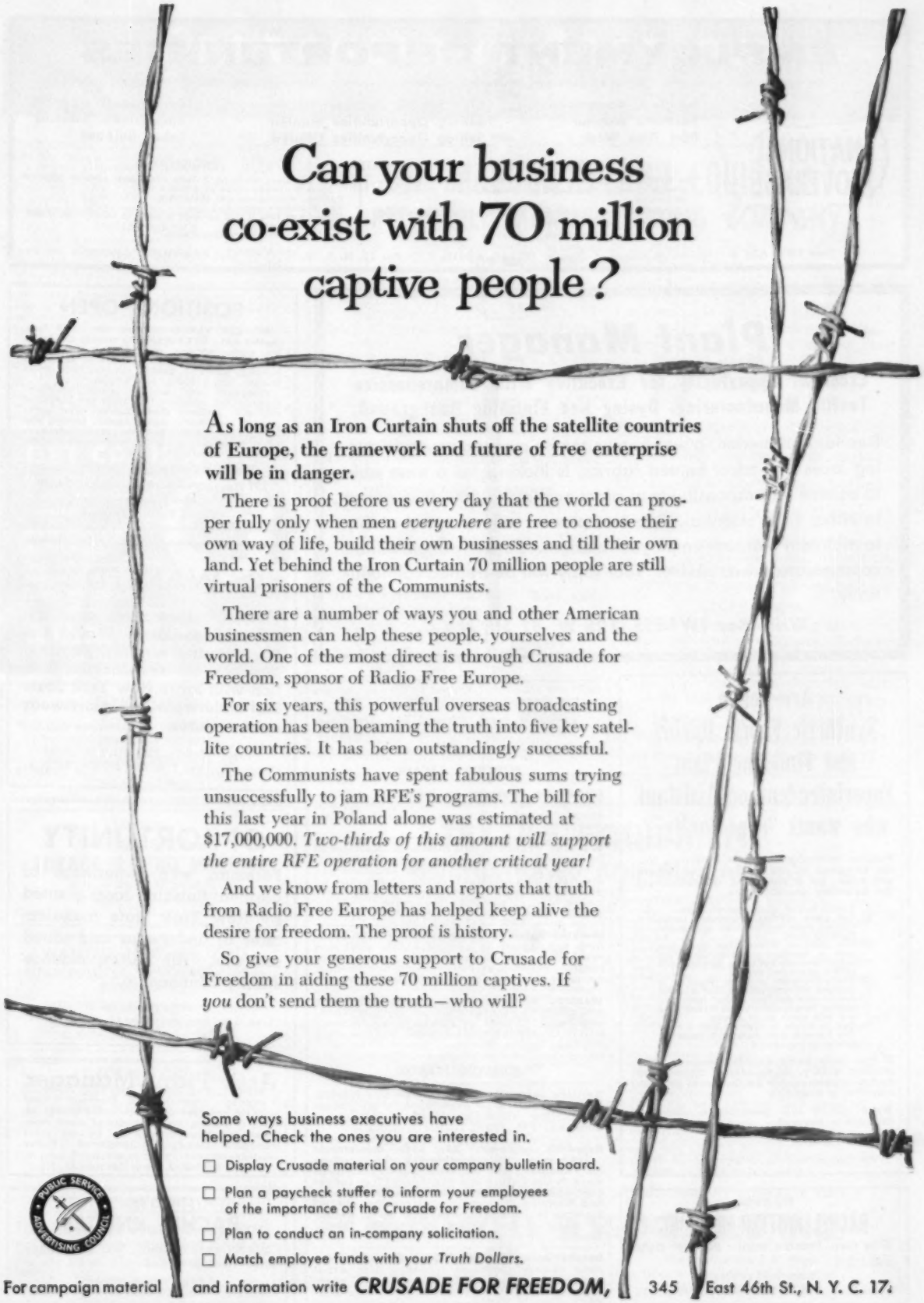

As long as an Iron Curtain shuts off the satellite countries of Europe, the framework and future of free enterprise will be in danger.

There is proof before us every day that the world can prosper fully only when men *everywhere* are free to choose their own way of life, build their own businesses and till their own land. Yet behind the Iron Curtain 70 million people are still virtual prisoners of the Communists.

There are a number of ways you and other American businessmen can help these people, yourselves and the world. One of the most direct is through Crusade for Freedom, sponsor of Radio Free Europe.

For six years, this powerful overseas broadcasting operation has been beaming the truth into five key satellite countries. It has been outstandingly successful.

The Communists have spent fabulous sums trying unsuccessfully to jam RFE's programs. The bill for this last year in Poland alone was estimated at $17,000,000. *Two-thirds of this amount will support the entire RFE operation for another critical year!*

And we know from letters and reports that truth from Radio Free Europe has helped keep alive the desire for freedom. The proof is history.

So give your generous support to Crusade for Freedom in aiding these 70 million captives. If *you* don't send them the truth—who will?

Some ways business executives have helped. Check the ones you are interested in.

- ☐ Display Crusade material on your company bulletin board.
- ☐ Plan a paycheck stuffer to inform your employees of the importance of the Crusade for Freedom.
- ☐ Plan to conduct an in-company solicitation.
- ☐ Match employee funds with *your Truth Dollars.*

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Due to a promotion, a well known textile company manufacturing laces and tricot knitted fabrics, is looking for a man able to assume full responsibility of plant employing 500. Experience in either field essential. Requires person with tact and ability to maintain pleasant employee relations. Compensation will be commensurate with ability. Your reply will be treated confidentially.

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Man with time study and rate setting experience. Would prefer someone with knitwear experience for responsible position with large New York State knit underwear and sportswear manufacturer.

Write: **P-4924**, TEXTILE WORLD
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Are you a Synthetic Fabric Dyeing and Finishing Plant Superintendent or Assistant who wants "opportunity"?

Position available in large American textile company in one of their Latin American mills, for a man with approximately the following qualifications.

A. Textile School or College Graduate.
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F. Can be single or married but if married his wife must be able to adjust to foreign surroundings.

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Write giving full descriptions. Strictest confidence assured.

P-4922, Textile World,
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WANTED

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P-4530, Textile World,
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REPLIES (Box No.): Address to office nearest you c/o This publication Classified Adv. Div.
NEW YORK: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)
LOS ANGELES: 1125 W. 6th St. (17)

POSITIONS VACANT

Circulation manager on industrial publication. Must have sales and writing ability and knowledge of mill work. P-4078, Textile World.

Wanted: Practical mill man well experienced in Carding spinning and weaving for Central America, good living conditions, excellent pay for right man, straight-salary plus bonus on production, send complete resume—of experience, education, and photograph. P-4790, Textile World.

Worsted Spinning Overseer wanted for Bradford and American system plant, wool and synthetics. Please give past employment resume, salaries earned, reasons for leaving, personal details, etc. P-4863, Textile World.

Wanted: Executive who can do scheduling and planning of production of Novelty Yarns and Fancy Fabrics on Dobby looms in small mill in Concord, North Carolina. Address reply P-4894, Textile World.

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Knitting supervisor for synthetic pile fabrics. Weldman machines, experience in all phases of knitting unlimited. Also experience in finishing. PW-4952, Textile World.

Research engineer, 37, with mechanical (dipl.) and textile engineering ability offers his capacities for research and development work in the Cotton and Synthetic Fiber Industry. 11 years experience in Cotton Spinning and Weaving, 3 years in construction, special training in organizing research work, author of many special books. PW-4869, Textile World.

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OPPORTUNITY

Foreman with experience in garment finishing room wanted by New York State manufacturer of underwear and allied products. All correspondence strictly confidential.

Write: **P-4927**, TEXTILE WORLD
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

Asst. Plant Manager

A modern American and Bradford system spinning mill operating on synthetic and on wool is looking for an assistant plant manager who has potential to become plant manager. Young man preferred. *Please reply to* **P-4921**, Textile World,
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RACHEL KNITTER

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P-4823, Textile World,
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If you are planning to establish a factory in Mexico I may be able to help you. I have over thirty years experience in textile manufacture, four years as plant manager in Mexico, understand handling of Mexican labor, especially interested in setting up and organizing new factory. SS-4957, Textile World.

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WANTED
Small Stainless Steel
PACKAGE DYEING MACHINE
Size: — up to 50 pounds.

W-4565, Textile World,
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Must be sold, we need space!
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1—Reiner High Speed Warper #BW279, Age 1949
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1,600—56" Drawtex Harness Frames for 14" Heddles
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150,000—Draper Impregnated 7⅜" Loom Bobbins

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27—Atwood Model 110 Headless Package Uptwisters 184 spindles each, both one and two-pound package bobbins
23—Atwood Utility Twisters, 240 spindles each
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2—U. S. Double Deck Redraw Frames of 192 spindles each. Aluminum Take-up Tubes, 4 x 6 and 3½ x 6 Twister Bobbins, Take-up Bobbins

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6—Measuregraph Inspecting Machines for 64" cloth, Counters, Reverse Motions, Double Supply Rolls
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1—DYE BECK, R&L., S.S., totally enclosed, 70", 12 string, controls, motor.
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1—SAMPLE CARD, D&F., 10" wide, 15" dia., feed table, 3 workers, 3 strippers, doffer.
1—CALENDER, Perkins, 80", 100 ton, top and bottom rolls oil heated, middle wool felt, M.D.
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1—VACUUM EXTRACTOR, Gessner, 72", Nash #3 Pump, PIV-VS Drive, 15 Hp. Motor.
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NAPPERS—All types and sizes in stock. Please advise your requirements.
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180 spindles each Ball Bearing
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3½" Gauge 2¼" Rings 2 Flange
7½ H. P. Motor
120 Volt, 3 phase, 60 cycles

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Model X
Serial No. 131

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Wet and Dry Bulb
Automatic Steam Valve

	Outside	Inside
Height	85½"	72½"
Width	102½"	82"
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A-Type Automatic Spooler
140 Spindles
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Motors—3 H. P. Drive, 4 H. P. Traveler
Quick Adjustable Snick Plates
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Approximately 10,000 Bakelite Skewers
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1—Schofield 72" Carding Picker, 1950
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1—Set of 14 72″ x 23″ stainless steel dry cans, 35 lb pressure, ball bearing.
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9' x 12'—1955

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For Nylon—Rayon—Silk

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56" Wide—1948—51

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24 space 4 shuttle cross shot.

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2 shuttle cross shot string tape.

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LOOMS BUILT TO YOUR SPECIFICATIONS

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WITH ROLLING & SEWING ATTACH.
DINSMORE MACHINE

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1945-1947 MODEL
UNITS OF 2-15 AND 1-12

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ALL STAINLESS • • 1951-53
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H&W • • ALL ELECTRIC • • 44-48

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1—Cocker Warper, Reliance Dr., 1949, 840-end Creel
1—Sipp Warper, 1948, EN8039, Cotton System
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4—Model K Bobbin Strippers and Hoists
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HOW TO USE. First, look in the table below and find the letter that designates the class or supply or service in which you are currently interested. Then consult in the index the page numbers that are to the left of that letter.

A. Air Conditioning, Air Cleaning.
B. Building Construction and Maintenance, Paints, Yard Equipment, Water Supply.
C. Chemicals and Dyestuffs.
D. Cleaning Equipment.
E. Dyeing, Finishing, and Cloth Room Equipment and Supplies.
F. Electrical Equipment—Motors, Controls, Lighting, Etc.
G. Fibers, Yarns, Mills, Finishing Companies.
H. Fluid Handling—Compressors, Pumps, Piping, Valves, Fittings.
K. Instruments, Measuring, Metering and Weighing Apparatus.
L. Knitting-Mill Equipment and Supplies.
M. Lubricants and Lubrication Equipment.
N. Management Services—Factors, Consulting Engineers, Insurance, Personnel Facilities, Plant Sites, Etc.
O. Materials and Components for Machinery and Equipment.
P. Materials Handling, Packaging, and Shipping Facilities.
Q. Power Generation and Transmission (see also Electrical Equipment).
R. Weaving and Warp Preparation Equipment and Supplies.
T. Yarn-Production, Twisting and Winding Equipment and Supplies.

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American Lava Corp.	207	L
American Moistening Co.	14	A
American Pulley Co.	274	Q
American Viscose Corp.	52	G
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Atlas Electric Devices Co.	12	K

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Butterworth & Sons Co., H. W.	5	E
Caldwell Co., W. E.	262	B, E
Carbide & Carbon Chem. Co. Div. of Union Carbide & Carbon Corp.	210	C

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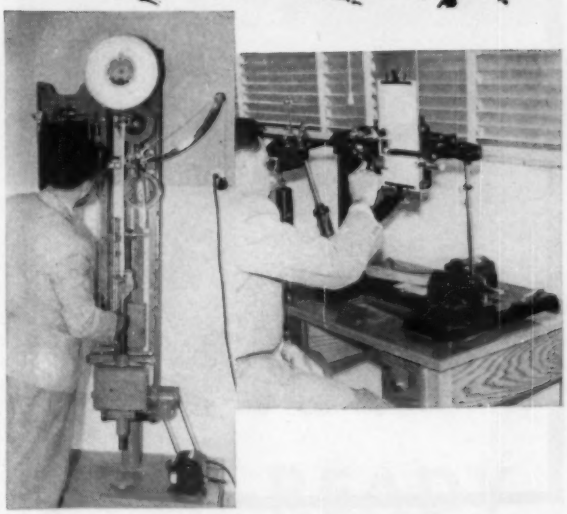

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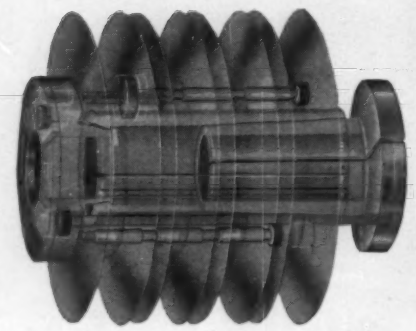

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Carrier Corp.	94-95	A
Carter, Inc., A. B.	234	T
Celanese Corp. of America		
Chem. Div.	69	C
Textile Div.	241	G
Yarn Div.	60	G
Century Electric Co.	67	F
Chemstrand Corp.	78-79	G
Cocker Machine & Foundry Co.	86	R
Cole Mfg. Co., R. D.	275	B E
Collins Bros. Machine Co.	232	T
Colonial Rubber Co.	258	E
Columbia-Southern Chem. Corp.	189	C
Continental Diamond Fibre Div.		
The Budd Co., Inc.	255	O Q
Corn Prods. Sales Co.	250	C
Cosa Corp.		
Textile Div.	263	T
Crompton & Knowles Corp.	13	R
Crompton-Richmond Co., Inc.	252	N
Crucible Steel Co.	231	O
Curtis & Marble Mach. Co.	154	F
Cutler-Hammer, Inc.	91	F
Darnell Corp., Ltd.	248	P
Dayton Rubber Co., The		
Textile Div.	32-33	RT
Diehl Mfg. Co.	37	F Q
Dinsmore Mfg. Co.	260	E
Dodge Mfg. Corp.	80	Q
Dow Chemical Co.	253	C
Draper Corporation	1, 165	R
Duesberg-Bosson of America, Inc.	260	T
Eastman Chem. Prods., Inc.	257	G
Eaton Mfg. Co.		
Dynamatic Div.	195	Q
Elliott Co.		
Crocker-Wheeler Div.	193	F Q
Eriez Mfg. Co.	87	T
Esso Standard Oil Co.	57	M
Fairbanks Co.	212	P
Fairbanks, Morse & Co.	82	K
Fidelity Machine Co., Inc.	38-39	L T
Fiske Bros. Refining Co.		
Lubriplate Div.	240	M
Foster Machine Co.	163	T
Franklin Process Co.	49	G
General Chem. Div.		
Allied Chem. & Dye Corp.	205	C
General Dyestuff Co.	233	C
General Electric Co.	64-65	F
Gessner Co., David	62	E
Goodrich Chem. Co., B. F.	34	C
Goodyear Tire & Rubber Co., Inc.	9, 25	C
Graton & Knight Co.	53	R
Guider Specialty Co.	242	E
Hartford Mach. Screw Co.	206	T
Haskell-Dawes Mach. Co., Inc.	228	T
Herbert Prods., Inc.	254	T
Hinde & Dauch	200	P
Howard Bros. Mfg. Co.	47	T
Hungerford & Terry, Inc.	256	B
Hunt Mach. Co., Rodney	93	E
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Industrie-Werke-Karlsruhe	216	E
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Klauder-Weldon-Giles Mach. Co.	8	E
Kuljian Corp., The	264	M
Link-Belt Co.	7	Q
Livermore Corp., H. F.	26-27	R
Lockwood Greene Engineers, Inc.	272	N
Loom Service Co.	264	N
Loper Co., Ralph E.	264	N
Lubriplate Div., Fiske Bros. Refining Co.	240	M
Ludell Mfg. Co.	77	E
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Main & Sons, Inc., Robt. A.	262	T
Manhattan Rubber Div.	56	Q
Maple Flooring Manufacturers Assoc.	236	B
Mathieson Chemicals Olin Mathieson Chem. Corp.	238	C
M-B Products Co.	236	H
McBride, Ed. J.	6	R
Meese, Inc.	227	P
Miller Corp., Harry	177	C
Minneapolis-Honeywell Reg. Co. Industrial Div.	88-89	K
Mount Hope Machinery Co.	202	E
Muller, Franz	41	E
Multi-Tex Prods. Corp.	245	G
Nash Co., J. M.	226	RT
National Aniline Div. Allied Chem. & Dye Corp.	29, 45	C
National Ring Traveler Co.	204	T
National Starch Prods., Inc.	209	C
Naugatuck Chem. Div. U. S. Rubber Co.	225	C
Neu	66	A E
Nopco Chem. Co.	36	C
Oakite Prods., Inc.	254	C
Olin Mathieson Chem. Corp. Industrial Chemicals Div.	238	C
Ordnance Gauge Co.	222	L
Parks-Cramer Co.	73	A D
Perfecting Service Co.	228	H
Platt Bros. Ltd.	160	T
Pneumafil Corp.	16	T
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Powell Valves	42	H
Powers Regulator Co.	261	K
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Proctor & Schwartz Inc.	247	E
Radio Corp. of America	63	T
Raybestos-Manhattan, Inc. Manhattan Rubber Div.	56	Q
Refined Products Co.	2nd Cover	C
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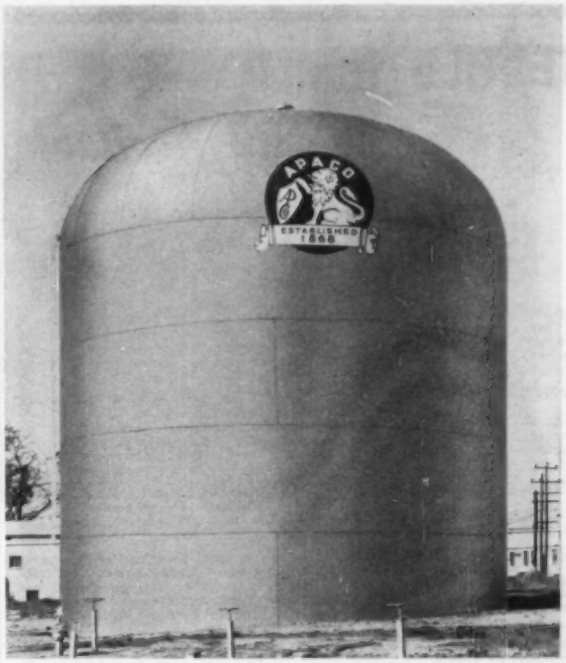
Spaulding Fibre Co., Inc.	217	P T
Square D Co.	191	F
Staley Mfg. Co., A. E.	83	C
Standard Chem. Prods., Inc.	219	C



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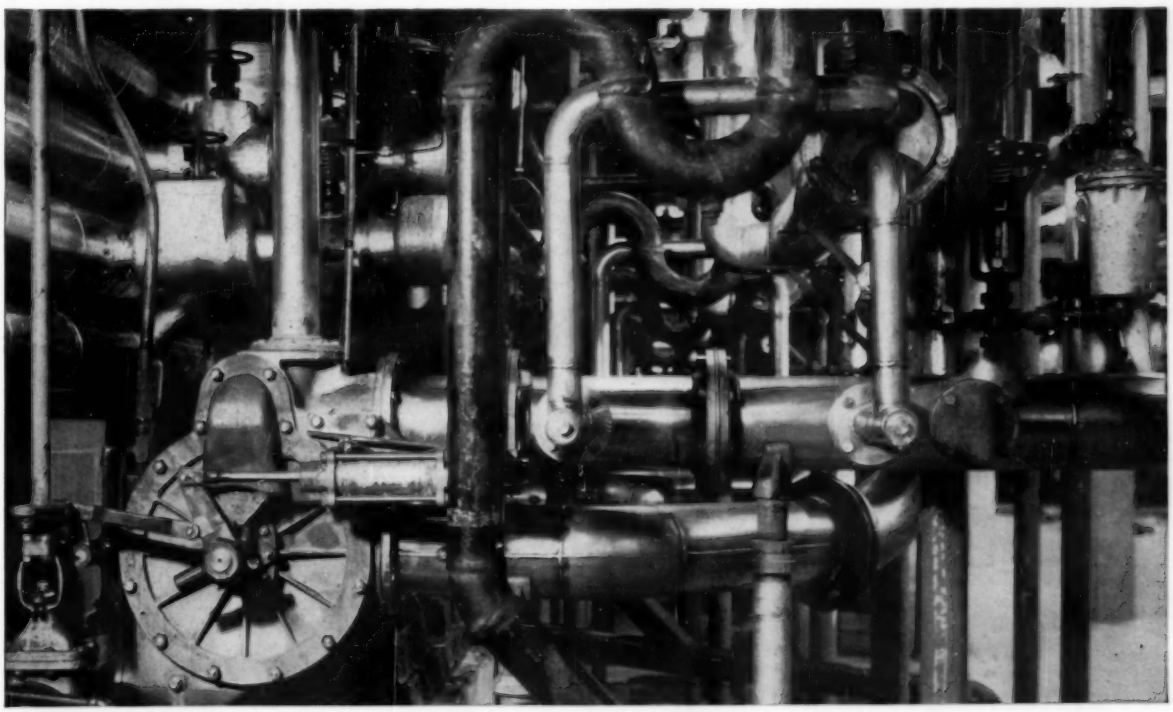

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